Appendix B

Bill Wallen

Sunrise over Painted Turtle Pond on Occoquan Bay Refuge

Findings of Appropriateness and Compatibility Determinations

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Findings of Appropriateness and Compatibility Determinations

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Introduction

This appendix presents the findings of appropriateness and the compatibility determinations we have developed for this CCP. Both findings of appropriateness and compatibility determinations are required by law (The National Wildlife Refuge System Administration Act of 1966 (Administration Act) as amended by The National Wildlife Refuge System Improvement Act of 1997 (Improvement Act)) and Service policy (603 FW 1 for finding of appropriateness; 603 FW 2 for Compatibility Determinations).

The finding of appropriateness documents our process for determining whether a proposed or existing non-wildlife dependent use, or any non-priority public use, is appropriate for a refuge. Six priority public uses were established by the Improvement Act: wildlife observation and photography, environmental education and interpretation, hunting, and fishing.

The compatibility determinations document our process for determining whether a proposed or existing wildlife-dependent recreational use, or any other use determined appropriate, is a compatible activity for a refuge. In evaluating compatibility, we must use professional judgment to determine that the use will not materially interfere with or detract from the fulfillment of the Refuge System mission, or the purposes of the refuge. All refuge uses, including recreational uses, refuge management economic activities, or other uses of a refuge by the public or other non-Service entity require compatibility determinations. Economic uses must also contribute to achieving refuge purposes and the mission of the Refuge System.

Compatibility determinations are not required for refuge management activities conducted by the Service or a Service-authorized agent to fulfill one or more purposes of the refuge, or the Refuge System mission. Examples of activities which do not require a compatibility determination include: prescribed burning; water level management; invasive species control; routine scientific monitoring, studies surveys and censuses; historic preservation activities; law enforcement activities; or the maintenance of existing refuge facilities, structures and improvements.

Compatibility determinations for existing wildlife-dependent recreational uses are re-evaluated every 15 years or when we prepare or revise the refuge's CCP, whichever is sooner. We re-evaluate compatibility determinations for all other uses every 10 years or when conditions change or significant new information about the use or its effects becomes available, whichever is sooner.

As you read through this appendix, you will notice that Occoquan Bay Refuge is included in most of the finding of appropriateness and compatibility determinations. Occoquan Bay Refuge's CCP was previously completed in 1997 and preceded current Service policy for finding of appropriateness and compatibility determinations. We determined that it was most effective and efficient to address activities for the entire Potomac River Refuge Complex, including Occoquan Bay, Mason Neck and Featherstone refuges, since staff, funding, and other management resources are shared among those refuge. In addition, we felt it made the most sense to establish a consistent timeline for the mandatory re-evaluations required by Service policy.

FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Potomac River NWR Complex (Elizabeth Hartwell Mason Neck, Occoquan Bay, and Featherstone NWR's)

Use: Berry picking/Mushroom Harvesting/Flower Picking/Medicinal Harvesting

This form is not required for wildlife-dependent recreational uses, take regulated by the State, or uses already described in a refuge CCP or step-down management plan approved after October 9, 1997.

Decision Criteria:	**YES**	**NO**
(a) Do we have jurisdiction over the use?	✔	
(b) Does the use comply with applicable laws and regulations (Federal, State, tribal, and local)?		✔
(c) Is the use consistent with applicable Executive orders and Department and Service policies?		✔
(d) Is the use consistent with public safety?		✔
(e) Is the use consistent with goals and objectives in an approved management plan or other document?		✔
(f) Has an earlier documented analysis not denied the use or is this the first time the use has been proposed?		✔
(g) Is the use manageable within available budget and staff?		✔
(h) Will this be manageable in the future within existing resources?		✔
(i) Does the use contribute to the public's understanding and appreciation of the refuge's natural or cultural resources, or is the use beneficial to the refuge's natural or cultural resources?		✔
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see section 1.6D, 603 FW 1, for description), compatible, wildlife-dependent recreation into the future?		✔

Where we do not have jurisdiction over the use ["no" to (a)], there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe ["no" to (b), (c), or (d)] may not be found appropriate. If the answer is "no" to any of the other questions above, we will **generally** not allow the use.

If indicated, the refuge manager has consulted with State fish and wildlife agencies. Yes _____ No ✔.

When the refuge manager finds the use appropriate based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is that the proposed use is:

Not Appropriate ✔ **Appropriate** _____

Refuge Manager: _____ Date: _____

If found to be **Not Appropriate**, the refuge supervisor does not need to sign concurrence if the use is a new use.

If an existing use is found **Not Appropriate** outside the CCP process, the refuge supervisor must sign concurrence.

If found to be **Appropriate**, the refuge supervisor must sign concurrence:

Refuge Supervisor: _____ Date: _____

A compatibility determination is required before the use may be allowed.

JUSTIFICATION FOR A FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Potomac River NWR Complex (Elizabeth Hartwell Mason Neck, Occoquan Bay, and Featherstone NWR's)

Use: Berry picking/ Mushroom Harvesting/Flower Picking/Medicinal Harvesting

NARRATIVE:

Berry picking, mushroom harvesting, flower picking, and medicinal harvesting are not priority public uses of the National Wildlife Refuge System Improvement Act of 1966 (16 U.S.C. 668dd-668ee), as amended by the National Wildlife Refuge System Improvement Act of 1997 (Public Law 105-57). Berry picking, mushroom harvesting, flower picking, and medicinal harvesting have been found to be not appropriate for the Potomac River NWR Complex. These uses would encourage visitors to stray from designated public use trails creating habitat damage and increased instances of refuge violations.

Impacts such as trampling vegetation and temporarily disturbing wildlife would occur. Many of the berry bushes, mushrooms, flowers, or medicinal plants found on the Complex are not located right next to trails and would require wandering off of designated trails. Visitors walking off established trails to collect any of these items may impact plants indirectly by compacting soils and walking on young plants, reducing survival and regeneration. Wildlife may avoid using suitable habitat due to the temporary disturbance created by visitors off trail.

Documented trespassing cases have occurred in the past by visitors engaged in these unauthorized uses. Participating in any of these activities would be interpreted by Refuge Law Enforcement as "Disturbing, injuring, … destroying, collecting or attempting to disturb, injure, … destroy or collect any plant …" (50 CFR 27.51)

These uses have not been historical or traditional uses of Complex.

Berry picking, mushroom harvesting, flower picking, and medicinal harvesting do not support a Refuge purpose, objective or goal and would not benefit the natural or cultural resources present within the Complex. Berry picking, mushroom harvesting, flower picking, and medicinal harvesting have been found to be not appropriate for the Potomac River NWR Complex.

FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Potomac River NWR Complex (Elizabeth Hartwell Mason Neck, Occoquan Bay, and Featherstone NWR's)

Use: Biking off of designated routes

This form is not required for wildlife-dependent recreational uses, take regulated by the State, or uses already described in a refuge CCP or step-down management plan approved after October 9, 1997.

Decision Criteria:	**YES**	**NO**
(a) Do we have jurisdiction over the use?	✔	
(b) Does the use comply with applicable laws and regulations (Federal, State, tribal, and local)?		✔
(c) Is the use consistent with applicable Executive orders and Department and Service policies?		✔
(d) Is the use consistent with public safety?		✔
(e) Is the use consistent with goals and objectives in an approved management plan or other document?		✔
(f) Has an earlier documented analysis not denied the use or is this the first time the use has been proposed?		✔
(g) Is the use manageable within available budget and staff?		✔
(h) Will this be manageable in the future within existing resources?		✔
(i) Does the use contribute to the public's understanding and appreciation of the refuge's natural or cultural resources, or is the use beneficial to the refuge's natural or cultural resources?		✔
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see section 1.6D, 603 FW 1, for description), compatible, wildlife-dependent recreation into the future?		✔

Where we do not have jurisdiction over the use ["no" to (a)], there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe ["no" to (b), (c), or (d)] may not be found appropriate. If the answer is "no" to any of the other questions above, we will **generally** not allow the use.

If indicated, the refuge manager has consulted with State fish and wildlife agencies. Yes ✔ No ____.

When the refuge manager finds the use appropriate based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is that the proposed use is:

Not Appropriate ✔ **Appropriate** ____

Refuge Manager: _____ Date: _____

If found to be **Not Appropriate**, the refuge supervisor does not need to sign concurrence if the use is a new use.

If an existing use is found **Not Appropriate** outside the CCP process, the refuge supervisor must sign concurrence.

If found to be **Appropriate**, the refuge supervisor must sign concurrence:

Refuge Supervisor: _____ Date: _____

A compatibility determination is required before the use may be allowed.

JUSTIFICATION FOR A FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Potomac River NWR Complex (Elizabeth Hartwell Mason Neck, Occoquan Bay, and Featherstone NWR's)

Use: Biking off of designated routes

NARRATIVE:

Biking off of designated routes is not identified as a priority public use of the National Wildlife Refuge System under the National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd-668ee), as amended by the National Wildlife Refuge System Improvement Act of 1997 (Public Law 105-57). Biking off of designated routes has been found to be not appropriate for the Potomac River NWR Complex. Biking in this manner causes conflicts with existing uses and requires increased maintenance duties.

Biking is not allowed on Woodmarsh Trail and Great Marsh Trail on the Elizabeth Hartwell Mason Neck NWR; Lake Drive, Deephole Point Road, Fox Road, Easy Road, Bayview Road, Delta Road, a portion of Charlie Road (section that is not included in the Wildlife Drive), and a portion of Taylor Point Road (section that is not included in the Wildlife Drive) on the Occoquan Bay NWR; and biking will not be allowed on any of the spur trails (planned) off of the proposed Potomac Heritage National Scenic Trail on Featherstone Refuge. Visitors experience the priority public uses of wildlife observation, photography, environmental education, and interpretation traveling by foot on these trails and roads. Biking on these trails and roads are not required to experience these uses. In addition, the existing trails and roads mentioned above are not wide enough to support the two-way traffic of multiple uses. Conflicts between bike groups, mountain bikes, and wildlife would occur as fast moving bikers flush or disturb wildlife adjacent to trails.

Trail and road maintenance is another issue. The Complex currently deals with maintenance of refuge trails and roads based on staff availability. These areas are monitored by volunteers (when available) and deficiencies are noted and reported to Complex staff. Instances of downed trees and erosion due to inclement weather occur occasionally and refuge response may take days, weeks, and in some cases months before repairs can be initiated.

Finally, biking in additional areas on the refuges was not an activity in which the public expressed interest during the public scoping meetings. Currently, biking is allowed on the following designated trails within the Complex: Elizabeth Hartwell Mason Neck NWR – High Point Trail; Occoquan Bay NWR – Wildlife Drive; and, Featherstone NWR – proposed Potomac Heritage National Scenic Trail. Opportunities for biking are available at other public lands and parks within a mile of each refuge within the Complex.

Biking off of designated trails does not support a Refuge purpose, objective or goal and would not benefit the natural or cultural resources present within the Complex. Biking off of designated trails has been found to be not appropriate for the Potomac River NWR Complex.

FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Potomac River NWR Complex (Elizabeth Hartwell Mason Neck, Occoquan Bay, and Featherstone NWR's)

Use: Geocaching

This form is not required for wildlife-dependent recreational uses, take regulated by the State, or uses already described in a refuge CCP or step-down management plan approved after October 9, 1997.

Decision Criteria:	**YES**	**NO**
(a) Do we have jurisdiction over the use?	✔	
(b) Does the use comply with applicable laws and regulations (Federal, State, tribal, and local)? Abandonment of Property 50CFR Ch. 1 27.93		✔
(c) Is the use consistent with applicable Executive orders and Department and Service policies?		✔
(d) Is the use consistent with public safety?		✔
(e) Is the use consistent with goals and objectives in an approved management plan or other document?		✔
(f) Has an earlier documented analysis not denied the use or is this the first time the use has been proposed?		✔
(g) Is the use manageable within available budget and staff?		✔
(h) Will this be manageable in the future within existing resources?		✔
(i) Does the use contribute to the public's understanding and appreciation of the refuge's natural or cultural resources, or is the use beneficial to the refuge's natural or cultural resources?		✔
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see section 1.6D, 603 FW 1, for description), compatible, wildlife-dependent recreation into the future?		✔

Where we do not have jurisdiction over the use ["no" to (a)], there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe ["no" to (b), (c), or (d)] may not be found appropriate. If the answer is "no" to any of the other questions above, we will **generally** not allow the use.

If indicated, the refuge manager has consulted with State fish and wildlife agencies. Yes ✔ No _____.

When the refuge manager finds the use appropriate based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is that the proposed use is:

Not Appropriate ✔ **Appropriate** _____

Refuge Manager: _____ Date: _____

If found to be **Not Appropriate**, the refuge supervisor does not need to sign concurrence if the use is a new use.

If an existing use is found **Not Appropriate** outside the CCP process, the refuge supervisor must sign concurrence.

If found to be **Appropriate**, the refuge supervisor must sign concurrence:

Refuge Supervisor: _____ Date: _____

A compatibility determination is required before the use may be allowed.

JUSTIFICATION FOR A FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Potomac River NWR Complex (Elizabeth Hartwell Mason Neck, Occoquan Bay, and Featherstone NWR's)

Use: Geocaching

NARRATIVE:

Geocaching is not a priority public uses of the National Wildlife Refuge System Improvement Act of 1966 (16 U.S.C. 668dd-668ee), as amended by the National Wildlife Refuge System Improvement Act of 1997 (Public Law 105-57). Geocaching has been found to be not appropriate for the Potomac River NWR Complex. This activity encourages visitors to stray from designated public use trails creating habitat damage and increased instances of refuge violations.

This use would encourage visitors to stray from designated public use trails. Impacts such as trampling vegetation and temporarily disturbing wildlife would occur. Visitors walking off established trails to locate a GPS point may impact plants indirectly by compacting soils and walking on young plants, reducing survival and regeneration. Wildlife may avoid using suitable habitat due to the temporary disturbance created by visitors off trail.

This use is not a historical or traditional use of the Complex. Documented trespassing cases have occurred in the past by visitors engaged in this unauthorized use.

Geocaching does not support a Refuge purpose, objective or goal and would not benefit the natural or cultural resources present within the Complex. Geocaching has been found to be not appropriate for the Potomac River NWR Complex.

FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Potomac River NWR Complex (Elizabeth Hartwell Mason Neck, Occoquan Bay, and Featherstone NWR's)

Use: Horseback Riding

This form is not required for wildlife-dependent recreational uses, take regulated by the State, or uses already described in a refuge CCP or step-down management plan approved after October 9, 1997.

Decision Criteria:	**YES**	**NO**
(a) Do we have jurisdiction over the use?	✔	
(b) Does the use comply with applicable laws and regulations (Federal, State, tribal, and local)?	✔	
(c) Is the use consistent with applicable Executive orders and Department and Service policies?		✔
(d) Is the use consistent with public safety?		✔
(e) Is the use consistent with goals and objectives in an approved management plan or other document?		✔
(f) Has an earlier documented analysis not denied the use or is this the first time the use has been proposed?		✔
(g) Is the use manageable within available budget and staff?		✔
(h) Will this be manageable in the future within existing resources?		✔
(i) Does the use contribute to the public's understanding and appreciation of the refuge's natural or cultural resources, or is the use beneficial to the refuge's natural or cultural resources?		✔
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see section 1.6D, 603 FW 1, for description), compatible, wildlife-dependent recreation into the future?		✔

Where we do not have jurisdiction over the use ["no" to (a)], there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe ["no" to (b), (c), or (d)] may not be found appropriate. If the answer is "no" to any of the other questions above, we will **generally** not allow the use.

If indicated, the refuge manager has consulted with State fish and wildlife agencies. Yes ✔ No ____.

When the refuge manager finds the use appropriate based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is that the proposed use is:

Not Appropriate ✔ **Appropriate** _____

Refuge Manager: _____ Date: _____

If found to be **Not Appropriate**, the refuge supervisor does not need to sign concurrence if the use is a new use.

If an existing use is found **Not Appropriate** outside the CCP process, the refuge supervisor must sign concurrence.

If found to be **Appropriate**, the refuge supervisor must sign concurrence:

Refuge Supervisor: _____ Date: _____

A compatibility determination is required before the use may be allowed.

JUSTIFICATION FOR A FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Potomac River NWR Complex (Elizabeth Hartwell Mason Neck, Occoquan Bay, and Featherstone NWR's)

Use: Horseback Riding

NARRATIVE:

Horseback riding, used as a means to conduct priority public uses, has been found to be not appropriate for the Potomac River NWR Complex. The Complex does not have parking space to support trailers in our designated parking areas. Trails and roads are unable to safely accommodate cars, horses, hikers, and bikers. The Complex does not have the staff resources to manage the use properly. Horseback riding would add significantly to the workload of law enforcement, visitor services, and maintenance staff because of the need to highly manage and monitor activities; trails would need continual maintenance (see below impacts). In addition, the use is accommodated at the Bureau of Land Management – Meadowood Division, which is less than a mile from the Complex.

Potential impacts of horseback travel include: soil compaction and erosion, downstream sedimentation, trampling and mortality of fragile plant communities, habitat loss/deterioration, wildlife disturbance, hydrologic changes and a shift in plant communities along trails. These potential impacts as reported in literature and through in-field investigation and observation at another Northeast Refuge (Canaan Valley NWR – West Virginia) are listed below:

Impacts to plants: Horse travel can impact plants on trails by directly crushing them. Indirectly, horses can impact plants by compacting soils diminishing soil porosity, aeration and nutrient availability (Kuss, 1986). Hammitt and Cole (1998) note, compaction limits the ability of plants to re-vegetate affected areas. Plants growing in wet or moist soils are the most sensitive to disturbance from trampling effects (Kuss, 1986). Moist and wet soil conditions are common in Canaan Valley particularly during spring and early summer and can occur on upland trails that have been incised and are channeling water.

Horse use may cause local impacts to plants and soils when confined. West Virginia Conservation Officer Harold Spencer observed that tying horses to trees damaged plants and soils. Confined horses in Canaan Valley ate the bark of nearby trees. This occurred at upland camps where horses were left for extended periods (Spencer, 2002). According to Cole (1983), bark damage from tethering horses to trees can result in insect invasions and girdling that can ultimately kill the tree. Soil compaction and erosion at these sites was also cited as a problem, especially where it exposed tree roots (Cole, 1983). Erosion from horse hooves may increase root exposure.

Soil Impacts: Horses cause soil compaction, particularly when soils are wet which can directly affect plant growth and survival (Kuss, 1986). Horseback riding has been found to cause braided trails in excessively muddy trail sections (Summer, 1986). Weaver and Dale (1978) found horse use caused a greater loss of vegetation cover, wider and deeper trails, and greater soil compaction when compared to hiker use on meadow and forest trail conditions. Horses may cause trail erosion by loosening the soil and increasing soil particle detachment under both wet and dry trail conditions (Deluca et al., 1998).

Field investigations of trails in Canaan Valley have documented extensive damage displaying classic examples of the erosive nature of Mauch Chunk derived soils after years of unregulated use. In addition, many trails are now trapping and channeling water creating more erosive conditions.

Kuss (1986) found that increasing moisture content of soils reduces the ability of the soil to support traffic. Summer (1986) recommended that horse trails be established on dry, well-drained sites. Routine maintenance to remove water and repair existing erosion is required to sustain horseback travel on most routes on the Main Tract (Rizzo, 2002; Zeedyk, 2002).

Invasive Species: Exposed soil and an abundance of sunlight along roads and trails provide ideal conditions for the establishment of invasive plant species. Invasive plant species may be transported through the presence of

exotic plant seeds in feed hay. This concern has initiated strict requirements for weed free hay in some natural areas. At Yellowstone National Park and Green Mountain National Forest and Finger Lakes National Forest only processed feed (pelletized or cubed hay) or certified "weed seed free" hay is allowed in the back country (Oliff ,2001; Zimmer, 2001).

Hydrologic Impacts: Roads and trails used for horseback travel can affect the hydrology of an area, primarily through alteration of drainage patterns. Bartgis and Berdine (1991) note that roads and trails can divert water from their original drainage patterns. This results in some drainages becoming dry while others accelerate erosion by being forced to carrying more water. Zeedyk (2002) documented many instances in Canaan Valley where existing trails were channeling water away from historic wetlands and in some cases causing erosion and sedimentation of bog and other wetland communities. These problems have profoundly if not irreversibly altered the extent, depths, characteristics and function of the wetlands on the Main Tract (Zeedyk, 2002).

Wildlife Impacts: Horseback travel can cause disturbances to wildlife. Disturbances vary with the wildlife species involved and the type, level, frequency, duration and the time of year such activities occur. Whittaker and Knight (1998) note that wildlife response can include attraction, habituation and avoidance. These responses can have negative impacts to wildlife such as mammals becoming habituated to humans making them easier targets for hunters. Human induced avoidance by wildlife can prevent animals from using otherwise suitable habitat.

Trails can disturb wildlife outside the immediate trail corridor (Trails and Wildlife Task Force, 1998, Miller et al., 2001). Miller et al. (1998) found bird abundance and nesting activities (including nest success) increased as distance from a recreational trail increased in both grassland and forested habitats. Bird communities in this study were apparently affected by the presence of recreational trails, where American robins were found near trails and specialist species (i.e. grasshopper sparrows) were found farther from trails. Nest predation was also found to be greater near trails (Miller et al., 1998).

Disturbance can cause shifts in habitat use, abandonment of habitat and increase energy demands on affected wildlife (Knight and Cole, 1991). Flight in response to disturbance can lower nesting productivity and cause disease and death. Knight and Cole (1991) suggest recreational activities occurring simultaneously may have a combined negative impact on wildlife. Hammitt and Cole (1998) conclude that the frequent presence of humans in wildland areas can dramatically change the normal behavior of wildlife mostly through unintentional harassment.

Seasonal sensitivities can compound the effect of disturbance on wildlife. Examples include regularly flushing birds during nesting or causing mammals to flee during winter months, thereby consuming large amounts of stored fat reserves. Hammitt and Cole (1998) note that females with young (such as white-tailed deer) are more likely to flee from a disturbance than those without young. Some uses, such as bird observation, are directly focused on viewing certain wildlife species and can cause more significant impacts during breeding season and winter months.

Wildlife disturbance from horse use has been cited for trail closures in West Virginia. A trail was closed at the Bluestone Wildlife Management Area due to anticipated impacts of disturbance to wild turkey populations (Silvester, 2001).

Impacts to wildlife may be indirectly caused through erosion and subsequent sedimentation of streams and vernal pools. Increased sediment loads can reduce aquatic vegetation and dissolved oxygen concentrations (Sadoway, 1986). Sedimentation can directly kill aquatic invertebrates which in turn impacts the success of amphibian larvae and adults (Sadoway, 1986). Observations by refuge staff in 2002 document numerous occurrences of amphibian egg masses that failed after becoming coated in sediment from eroding trails and roads nearby. Bartgis and Berdine (1991) report that sedimentation was damaging habitat in Canaan Valley and could cause impacts to the rare plants, water quality and possibly affect habitat of the southern water shrew (*Sorex palustris punctulatus*), a state Species of Concern.

User Conflicts: Conflicts between trail users are commonly reported in the literature (Knight and Gutzwiller, 1995, Ramthun, 1995, Watson et al., 1994, Chavez et al., 1993). Conflicts range from concerns over personal

safety to certain user groups feeling that they should be given priority over other groups based on a past history or other reasons. Providing safe routes for wildlife-oriented activities is an important consideration for wildlife observation trails on the refuge. Safety considerations include ability of multiple modes of access to use a trail without creating dangerous conditions, ability to maintain a trail to allow safe use and timing of various uses such as wildlife observation.

Horseback riding does not support a Refuge purpose, objective or goal and would not benefit the natural or cultural resources present within the Complex. Horseback riding has been found to be not appropriate for the Potomac River NWR Complex.

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FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Potomac River NWR Complex (Elizabeth Hartwell Mason Neck, Occoquan Bay, and Featherstone NWR's)

Use: Non-wildlife Dependent Group Gatherings

This form is not required for wildlife-dependent recreational uses, take regulated by the State, or uses already described in a refuge CCP or step-down management plan approved after October 9, 1997.

Decision Criteria:	**YES**	**NO**
(a) Do we have jurisdiction over the use?	✔	
(b) Does the use comply with applicable laws and regulations (Federal, State, tribal, and local)?		✔
(c) Is the use consistent with applicable Executive orders and Department and Service policies?		✔
(d) Is the use consistent with public safety?	✔	
(e) Is the use consistent with goals and objectives in an approved management plan or other document?		✔
(f) Has an earlier documented analysis not denied the use or is this the first time the use has been proposed?		✔
(g) Is the use manageable within available budget and staff?		✔
(h) Will this be manageable in the future within existing resources?		✔
(i) Does the use contribute to the public's understanding and appreciation of the refuge's natural or cultural resources, or is the use beneficial to the refuge's natural or cultural resources?		✔
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see section 1.6D, 603 FW 1, for description), compatible, wildlife-dependent recreation into the future?		✔

Where we do not have jurisdiction over the use ["no" to (a)], there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe ["no" to (b), (c), or (d)] may not be found appropriate. If the answer is "no" to any of the other questions above, we will **generally** not allow the use.

If indicated, the refuge manager has consulted with State fish and wildlife agencies. Yes _____ No ✔.

When the refuge manager finds the use appropriate based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is that the proposed use is:

Not Appropriate ✔ **Appropriate** _____

Refuge Manager: _____ Date: _____

If found to be **Not Appropriate**, the refuge supervisor does not need to sign concurrence if the use is a new use.

If an existing use is found **Not Appropriate** outside the CCP process, the refuge supervisor must sign concurrence.

If found to be **Appropriate**, the refuge supervisor must sign concurrence:

Refuge Supervisor: _____ Date: _____

A compatibility determination is required before the use may be allowed.

JUSTIFICATION FOR A FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Potomac River NWR Complex (Elizabeth Hartwell Mason Neck, Occoquan Bay, and Featherstone NWR's)

Use: Non-wildlife Dependent Group Gatherings

NARRATIVE:

Non-wildlife dependent group gatherings such as, but not limited to, ceremonies, weddings, memorial services, family reunions, etc., are not priority public uses of the National Wildlife Refuge System Improvement Act of 1966 (16 U.S.C. 668dd-668ee), as amended by the National Wildlife Refuge System Improvement Act of 1997 (Public Law 105-57).

These types of uses do not support a Refuge purpose, objective or goal and would not benefit the natural or cultural resources present within the Complex. Non-wildlife dependent group gatherings have been found to be not appropriate for the Potomac River NWR Complex.

FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Potomac River NWR Complex (Elizabeth Hartwell Mason Neck, Occoquan Bay, and Featherstone NWR's)

Use: Organized or Facility-supported Picnicking

This form is not required for wildlife-dependent recreational uses, take regulated by the State, or uses already described in a refuge CCP or step-down management plan approved after October 9, 1997.

Decision Criteria:	**YES**	**NO**
(a) Do we have jurisdiction over the use?	✔	
(b) Does the use comply with applicable laws and regulations (Federal, State, tribal, and local)?	✔	
(c) Is the use consistent with applicable Executive orders and Department and Service policies?		✔
(d) Is the use consistent with public safety?	✔	
(e) Is the use consistent with goals and objectives in an approved management plan or other document?		✔
(f) Has an earlier documented analysis not denied the use or is this the first time the use has been proposed?		✔
(g) Is the use manageable within available budget and staff?		✔
(h) Will this be manageable in the future within existing resources?		✔
(i) Does the use contribute to the public's understanding and appreciation of the refuge's natural or cultural resources, or is the use beneficial to the refuge's natural or cultural resources?		✔
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see section 1.6D, 603 FW 1, for description), compatible, wildlife-dependent recreation into the future?		✔

Where we do not have jurisdiction over the use ["no" to (a)], there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe ["no" to (b), (c), or (d)] may not be found appropriate. If the answer is "no" to any of the other questions above, we will **generally** not allow the use.

If indicated, the refuge manager has consulted with State fish and wildlife agencies. Yes _____ No ✔.

When the refuge manager finds the use appropriate based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is that the proposed use is:

Not Appropriate ✔ **Appropriate** _____

Refuge Manager: _____ Date: _____

If found to be **Not Appropriate**, the refuge supervisor does not need to sign concurrence if the use is a new use.

If an existing use is found **Not Appropriate** outside the CCP process, the refuge supervisor must sign concurrence.

If found to be **Appropriate**, the refuge supervisor must sign concurrence:

Refuge Supervisor: _____ Date: _____

A compatibility determination is required before the use may be allowed.

JUSTIFICATION FOR A FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Potomac River NWR Complex (Elizabeth Hartwell Mason Neck, Occoquan Bay, and Featherstone NWR's)

Use: Organized or Facility-supported Picnicking

NARRATIVE:

Picnicking is not identified as a priority public use of the National Wildlife Refuge System under the National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd-668ee), as amended by the National Wildlife Refuge System Improvement Act of 1997 (Public Law 105-57). Picnicking has been found to be not appropriate for the Potomac River NWR Complex.

The Complex does not provide the amenities for picnicking activities, such as picnic tables, shelters, excessive trash containers, grills, etc. In addition, we do not have the resources to manage a large picnic area or program. Although organized picnicking is prohibited, this does not preclude visitors from bringing food with them for nutrition or safety reasons while they participate in other appropriate and compatible activities on the Complex

Prohibiting picnicking may positively impact wildlife and wildlife habitat; if only by reducing the amount of soil compaction, vegetation trampling, and trash and food waste that might occur on and off trails and the frequency and extent of wildlife disturbance.

Organized or facility-supported picnicking does not support a Refuge purpose, objective or goal and would not benefit the natural or cultural resources present within the Complex. Organized or facility-supported picnicking has been found to be not appropriate for the Potomac River NWR Complex.

FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Potomac River NWR Complex (Elizabeth Hartwell Mason Neck, Occoquan Bay, and Featherstone NWR's)

Use: Swimming and Sunbathing on Refuge Shore

This form is not required for wildlife-dependent recreational uses, take regulated by the State, or uses already described in a refuge CCP or step-down management plan approved after October 9, 1997.

Decision Criteria:	**YES**	**NO**
(a) Do we have jurisdiction over the use?	✔	
(b) Does the use comply with applicable laws and regulations (Federal, State, tribal, and local)?	✔	
(c) Is the use consistent with applicable Executive orders and Department and Service policies?		✔
(d) Is the use consistent with public safety?		✔
(e) Is the use consistent with goals and objectives in an approved management plan or other document?		✔
(f) Has an earlier documented analysis not denied the use or is this the first time the use has been proposed?		✔
(g) Is the use manageable within available budget and staff?		✔
(h) Will this be manageable in the future within existing resources?		✔
(i) Does the use contribute to the public's understanding and appreciation of the refuge's natural or cultural resources, or is the use beneficial to the refuge's natural or cultural resources?		✔
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see section 1.6D, 603 FW 1, for description), compatible, wildlife-dependent recreation into the future?		✔

Where we do not have jurisdiction over the use ["no" to (a)], there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe ["no" to (b), (c), or (d)] may not be found appropriate. If the answer is "no" to any of the other questions above, we will **generally** not allow the use.

If indicated, the refuge manager has consulted with State fish and wildlife agencies. Yes _____ No ✔.

When the refuge manager finds the use appropriate based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is that the proposed use is:

Not Appropriate ✔ **Appropriate** _____

Refuge Manager: _____ Date: _____

If found to be **Not Appropriate**, the refuge supervisor does not need to sign concurrence if the use is a new use.

If an existing use is found **Not Appropriate** outside the CCP process, the refuge supervisor must sign concurrence.

If found to be **Appropriate**, the refuge supervisor must sign concurrence:

Refuge Supervisor: _____ Date: _____

A compatibility determination is required before the use may be allowed.

JUSTIFICATION FOR A FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Potomac River NWR Complex (Elizabeth Hartwell Mason Neck, Occoquan Bay, and Featherstone NWR's)

Use: Swimming and Sunbathing on Refuge Shore

NARRATIVE:

Swimming and sunbathing are not identified as a priority public use of the National Wildlife Refuge System under the National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd-668ee), as amended by the National Wildlife Refuge System Improvement Act of 1997 (Public Law 105-57). Swimming and sunbathing have been found to be not appropriate for the Potomac River NWR Complex.

The Potomac River NWR Complex has a total of 8.5 miles of shoreline and is closed to all public access. During the summer months, sections of the shoreline during low tide become exposed and are attractive to boaters and other users of the Potomac River and Occoquan Bay. This attraction creates safety concerns and increases the instances where law enforcement response is necessary. The shoreline has never been opened to public access and is protected for use by native wildlife. The Complex does not have the facilities or staff to manage these uses.

Swimming and sunbathing does not support a Refuge purpose, objective or goal and would not benefit the natural or cultural resources present within the Complex. Swimming and sunbathing has been found to be not appropriate for the Potomac River NWR Complex.

FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Elizabeth Hartwell Mason Neck NWR and Featherstone NWR

Use: Dog Walking

This form is not required for wildlife-dependent recreational uses, take regulated by the State, or uses already described in a refuge CCP or step-down management plan approved after October 9, 1997.

Decision Criteria:	**YES**	**NO**
(a) Do we have jurisdiction over the use?	✔	
(b) Does the use comply with applicable laws and regulations (Federal, State, tribal, and local)?	✔	
(c) Is the use consistent with applicable Executive orders and Department and Service policies?	✔	
(d) Is the use consistent with public safety?	✔	
(e) Is the use consistent with goals and objectives in an approved management plan or other document?	✔	
(f) Has an earlier documented analysis not denied the use or is this the first time the use has been proposed?	✔	
(g) Is the use manageable within available budget and staff?	✔	
(h) Will this be manageable in the future within existing resources?	✔	
(i) Does the use contribute to the public's understanding and appreciation of the refuge's natural or cultural resources, or is the use beneficial to the refuge's natural or cultural resources?	✔	
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see section 1.6D, 603 FW 1, for description), compatible, wildlife-dependent recreation into the future?	✔	

Where we do not have jurisdiction over the use ["no" to (a)], there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe ["no" to (b), (c), or (d)] may not be found appropriate. If the answer is "no" to any of the other questions above, we will **generally** not allow the use.

If indicated, the refuge manager has consulted with State fish and wildlife agencies. Yes _____ No ✔.

When the refuge manager finds the use appropriate based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is that the proposed use is:

Not Appropriate _____ **Appropriate** ✔

Refuge Manager: _____ Date: _____

If found to be **Not Appropriate**, the refuge supervisor does not need to sign concurrence if the use is a new use.

If an existing use is found **Not Appropriate** outside the CCP process, the refuge supervisor must sign concurrence.

If found to be **Appropriate**, the refuge supervisor must sign concurrence:

Refuge Supervisor: _____ Date: _____

A compatibility determination is required before the use may be allowed.

JUSTIFICATION FOR A FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Elizabeth Hartwell Mason Neck NWR and Featherstone NWR

Use: Dog Walking

NARRATIVE:

Elizabeth Hartwell Mason Neck NWR trails and the proposed trails for Featherstone NWR are ideal for walking dogs. Although dogs can increase disturbance to wildlife, the Refuge will strictly enforce a leash law to keep the dog localized with the pedestrian. Dog walking has been found to be appropriate for Elizabeth Hartwell Mason Neck NWR and Featherstone NWR.

Dog walking is an existing use on the Elizabeth Hartwell Mason Neck NWR and will be restricted to the current and planned trails on both refuges that are designated as open to the public.

COMPATIBILITY DETERMINATION

USE:

Dog walking

REFUGE NAME:

Elizabeth Hartwell Mason Neck and Featherstone National Wildlife Refuges

ESTABLISHING AND ACQUISITION AUTHORITY(IES):

Elizabeth Hartwell Mason Neck National Wildlife Refuge
Date Established: 1 February 1969

Establishing Authorities: Endangered Species Act (16 U.S.C. 1534), the Refuge Recreation Act (16 U.S.C. 460[k] – 460[k][4]), an Act Authorizing the Transfer of Certain Property for Wildlife , or other purposes (16 U.S.C. 667b), and the Migratory Bird Conservation Act (16 U.S.C. 715d).

Featherstone National Wildlife Refuge
Date Established: 23 February 1970

Establishing Authorities: Public Law 91-499 (1970).

REFUGE PURPOSE(S):

Elizabeth Hartwell Mason Neck National Wildlife Refuge
Lands acquired under the Endangered Species Act are "… to conserve (A) fish or wildlife which are listed as endangered species or threatened species …. Or (B) plants …" (16 U.S.C. § 1534); lands acquired under the Refuge Recreation Act were found to be "… suitable for– (1) incidental fish and wildlife-oriented recreational development, (2) the protection of natural resources, (3) the conservation of endangered species or threatened species …" 16 U.S.C. § 460k-1 "… the Secretary … may accept and use … real … property. Such acceptance may be accomplished under the terms and conditions of restrictive covenants imposed by donors …" (16 U.S.C. 460[k] – 460[k][4]); lands acquired under the Act Authorizing the Transfer of Certain Property for Wildlife , or other purposes were established for their "… particular value in carrying out the national migratory bird management program." (16 U.S.C. § 667b); and lands acquired under the Migratory Bird Conservation Act were "… for use as an inviolate sanctuary, or for any other management purpose, for migratory birds." (16 U.S.C. § 715d).

Featherstone National Wildlife Refuge
Lands acquired under Public Law 91-499 (1970) were established to "... to protect the natural features of a contiguous wetland area." Public Law 91-499, dated Oct. 22, 1970.

NATIONAL WILDLIFE REFUGE SYSTEM MISSION:

The mission of the National Wildlife Refuge System is "to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans" (National Wildlife Refuge System Improvement Act of 1997, Public Law 105-57).

DESCRIPTION OF USE:

(a) What is this use? Is it a priority public use?
The use is dog walking. Dog walking is not a priority public use of the National Wildlife Refuge System under the National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd-668ee), as amended by the National Wildlife Refuge System Improvement Act of 1997 (Public Law 105-57).

(b) Where would the use be conducted?
Dog walking would be allowed in the following areas:

1. On all current and future public trails located on the Elizabeth Hartwell Mason Neck NWR, including but not limited to the Joseph V. Gartlan Jr. Great Marsh Trail, the Woodmarsh Trail, and the High Point Trail.

2. We also propose to allow dog walking along any newly created trails on Featherstone NWR.

(c) When would the use be conducted?
Elizabeth Hartwell Mason Neck NWR: Year-round, during refuge hours of operation (typically April 1- September 30 from 7:00 AM to 7:00 PM and October 1 – March 31 from 7:00 AM to 5:00 PM). A temporary closure to these activities would be implemented during any scheduled Refuge hunt dates.

Featherstone NWR: Assuming trails have been developed and public access is available, year-round, during refuge hours of operation (typically April 1- September 30 from 7:00 AM to 7:00 PM and October 1 – March 31 from 7:00 AM to 5:00 PM). A temporary closure to these activities would be implemented during any scheduled Refuge hunt dates.

(d) How would the use be conducted?
Dog owners enter the Refuge, park in the visitor parking lots, and proceed to the open trails. Dogs must be kept on a leash, no longer than ten feet in length. This leash law will be strictly enforced to minimize wildlife and visitor disturbance. Owners will be required to clean up after their dogs.

A Refuge brochure/flyer will be developed for visitor information and education, specifically informing them about regulations and ethics while engaging in this activity on the Refuge. Refuge signs regarding dog walking will be developed and placed when and where necessary to help regulate this activity. Refuge staff patrols by foot and vehicle will be conducted to advise visitors of regulations, monitor visitor activity, and as necessary, to enforce the regulations.

(e) Why is this use being proposed?
Visitors can participate in wildlife-dependant recreation while walking a dog. There is a current demand for this use on the Refuge, and therefore, we plan to continue with our existing policy on dog walking to better meet the needs of our public and minimize wildlife disturbances.

AVAILABILITY OF RESOURCES:

Permitting this use is within the resources available to administer our Visitor Services Program. There is no additional staff or material costs incurred to the Refuge. Compliance with the leash law is within the regular duties of the Law Enforcement Officer.

ANTICIPATED IMPACTS OF THE USE:

Potential Impacts to Birds: The presence of dogs and pedestrians on the refuge, either on trails or off trails, is likely to cause temporary disturbance to birds. A study done in Colorado (Miller et al. 2001) found that robins, representing forest species, and western meadowlarks and vesper sparrows, representing grassland species, flushed when approached by dogs on and off leash. Dogs alone generally resulted in less disturbance than when pedestrians were present, either alone or holding a leashed dog. The authors surmised that because dogs resemble coyotes and foxes, which are not considered significant predators of songbirds (Leach and Frazier 1953, Andelt et al. 1987), they may not have been perceived as an important threat. Disturbance was generally

greater off trails than on trails. Dogs alone are not likely to cause significant disturbance beyond that caused by foxes and coyotes. Any disturbance would be temporary and should not lead to loss of migratory birds or their habitats.

Potential Impacts to Threatened and Endangered Species: Bald eagles were delisted as a threatened species in 2007, but remain a management focus for the refuge. We have no evidence to suggest that the temporary presence of dogs on the refuge will have negative effects on bald eagle nesting or roosting. If necessary to prevent disturbance, we will post sensitive bald eagle areas, such as nests and known roosts, as closed areas for dog walking.

Potential Impacts to wetlands: It is unlikely that dogs will enter refuge wetlands due to trail location and refuge regulations. All dogs must be on leash and regulations state that visitors must remain on trails during visits to either refuge.

Potential Impacts to other fish and wildlife resources: There can be an increase in wildlife disturbance from dog walking simply due to normal dog behavior (i.e. jumping, barking, running off a leash). At some level, domestic dogs maintain instincts to hunt and/or chase. Given the appropriate stimulus, those instincts can be triggered in many different settings. Even if the chase instinct is not triggered, dog presence in and of itself has been shown to disrupt many wildlife species (Sime, 1999). Sime presents some effects of disturbance, harassment, and displacement on wildlife attributable to domestic dogs that accompany recreationists. Sime states that authors of many wildlife disturbance studies concluded that dogs with people, dogs on-leash, or loose dogs provoked the most pronounced disturbance reactions from their study animals. Dogs extend the zone of human influence when off-leash. Many ungulate species demonstrated more pronounced reactions to unanticipated disturbances, as a dog off-leash would be until within very close range. In addition, dogs can force movement by ungulates (avoidance or evasion during pursuit), which is in direct conflict with overwinter survival strategies which promote energy conservation. Sime continues to highlight that dogs are noted predators for various wildlife species in all seasons. Domestic dogs can potentially introduce diseases (distemper, parvovirus, and rabies) and transport parasites into wildlife habitats. While dog impacts to wildlife likely occur at the individual scale, the results may still have important implications for wildlife populations. For most wildlife species, if a "red flag" is raised by pedestrian-based recreational disturbance, there could also be problems associated with the presence of domestic dogs. Lastly, dog waste can create sanitation issues and an unsightly environment to other Refuge visitors.

We do not expect a substantial increase in the cumulative effects of visitor use over the 15 year timeframe of this plan. Staff, in collaboration with volunteers, will monitor and evaluate the effects of these priority public uses to discern and respond to any unacceptable impacts on wildlife or habitats. To mitigate those impacts, the Complex will continue to close areas to the public to protect wildlife during critical life periods.

PUBLIC REVIEW AND COMMENT:

As part of the Elizabeth Hartwell Mason Neck/Featherstone CCP process, this compatibility determination will undergo extensive public review, including a comment period of 45 days following the release of the Draft CCP/EA.

DETERMINATION (CHECK ONE BELOW):

_____ Use is not compatible

__X__ Use is compatible with the following stipulations

STIPULATIONS NECESSARY TO ENSURE COMPATIBILITY:

Dogs must be on a leash, no longer than ten feet in length and must refrain from entering closed areas.

JUSTIFICATION:

Although dogs can increase disturbance to wildlife, the Refuge will strictly enforce a leash law to keep dogs and disturbances localized with the pedestrian. This is an existing use at the Mason Neck Refuge and expectations for the proposed Potomac Heritage National Scenic Trial to support this use on Featherstone Refuge are high.

We have not had significant negative impacts from this use. There are no documented incidences of domestic dog-wildlife disturbances, nor of dog-people problems.

We believe most dog walkers are local residents, who regularly visit the Mason Neck Refuge for wildlife-dependant recreation, and who understand our policy. We will have an increase in dog walking activity on the Featherstone Refuge because we do not offer that use now; however, the increase is not expected to be substantial because of the lack of access points available to the general public.

SIGNATURE:

Refuge Manager: _____ _____
(Signature) (Date)

CONCURRENCE:

Regional Chief: _____ _____
(Signature) (Date)

MANDATORY 10 YEAR RE-EVALUATION DATE: _____

LITERATURE CITED:

Andelt, W.F., J.G. Kie, F.F. Knowlton, and K. Cardwell. 1987. Variation in coyote diets associated with season and successional changes in vegetation. Journal of Wildlife Management 51:273-277.

Leach, H.R., and W.H. Fraizer. 1953. A study of the possible extent of predation on heavy concentrations of valley quail with special reference to the bobcat. California Fish and Game 39:527- 538.

Miller, S.G., R.L. Knight and C.K. Miller. 2001. Wildlife responses to pedestrians and dogs. Wildlife Society Bulletin 29(1):124-132.

Sime, C. A. 1999. Domestic Dogs in Wildlife Habitats. Pages 8.1-8.17 in G. Joslin and H. Youmans, coordinators. Effects of recreation on Rocky Mountain wildlife: A Review for Montana. Committee on Effects of Recreation on Wildlife, Montana Chapter of The Wildlife Society. 307pp.

FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Potomac River NWR Complex (Elizabeth Hartwell Mason Neck, Occoquan Bay, and Featherstone NWR's)

Use: Outdoor Events

This form is not required for wildlife-dependent recreational uses, take regulated by the State, or uses already described in a refuge CCP or step-down management plan approved after October 9, 1997.

Decision Criteria:	**YES**	**NO**
(a) Do we have jurisdiction over the use?	✔	
(b) Does the use comply with applicable laws and regulations (Federal, State, tribal, and local)?	✔	
(c) Is the use consistent with applicable Executive orders and Department and Service policies?	✔	
(d) Is the use consistent with public safety?	✔	
(e) Is the use consistent with goals and objectives in an approved management plan or other document?		✔
(f) Has an earlier documented analysis not denied the use or is this the first time the use has been proposed?	✔	
(g) Is the use manageable within available budget and staff?	✔	
(h) Will this be manageable in the future within existing resources?	✔	
(i) Does the use contribute to the public's understanding and appreciation of the refuge's natural or cultural resources, or is the use beneficial to the refuge's natural or cultural resources?	✔	
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see section 1.6D, 603 FW 1, for description), compatible, wildlife-dependent recreation into the future?	✔	

Where we do not have jurisdiction over the use ["no" to (a)], there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe ["no" to (b), (c), or (d)] may not be found appropriate. If the answer is "no" to any of the other questions above, we will **generally** not allow the use.

If indicated, the refuge manager has consulted with State fish and wildlife agencies. Yes ✔ No _____.

When the refuge manager finds the use appropriate based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is that the proposed use is:

Not Appropriate _____ **Appropriate** ✔

Refuge Manager: _____ Date: _____

If found to be **Not Appropriate**, the refuge supervisor does not need to sign concurrence if the use is a new use.

If an existing use is found **Not Appropriate** outside the CCP process, the refuge supervisor must sign concurrence.

If found to be **Appropriate**, the refuge supervisor must sign concurrence:

Refuge Supervisor: _____ Date: _____

A compatibility determination is required before the use may be allowed.

JUSTIFICATION FOR A FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Potomac River NWR Complex (Elizabeth Hartwell Mason Neck, Occoquan Bay, and Featherstone NWR's)

Use: Outdoor Events

NARRATIVE:

Competitive or non-competitive outdoor events that are appropriate on the Refuge include those that incorporate compatible uses such as wildlife observation and interpretation. These events would not be hosted by the Refuge, but rather the Refuge would participate as a partner in the event (e.g., the Eagle Run, Elizabeth Hartwell Day related activities). Each request has different logistics, and therefore, would be evaluated for impacts on the Refuge mission, and a Special Use Permit is issued unless found to be detrimental to the Refuge mission. Outdoor Events have been found to be appropriate for the Potomac River NWR Complex.

COMPATIBILITY DETERMINATION

USE:

Outdoor Events

REFUGE NAME:

Elizabeth Hartwell Mason Neck, Featherstone and Occoquan Bay National Wildlife Refuges (Potomac River National Wildlife Refuge Complex)

ESTABLISHING AND ACQUISITION AUTHORITY(IES):

The Potomac River National Wildlife Refuge Complex is composed of three nationally significant wildlife areas: Mason Neck, Featherstone, and Occoquan Bay National Wildlife Refuges.

Each National Wildlife Refuge (NWR) is established under specific legislation or administrative authority. Similarly, each refuge has one or more specific legal purposes for which it was established. The establishing legislation or authority and the purposes for each refuge in the Potomac River NWR Complex (Refuge Complex) are provided below:

Elizabeth Hartwell Mason Neck National Wildlife Refuge
Date Established: 1 February 1969

Establishing Authorities: Elizabeth Hartwell Mason Neck NWR (Mason Neck Refuge) was established under the Endangered Species Act (16 U.S.C. 1534), the Refuge Recreation Act (16 U.S.C. 460[k] – 460[k][4]), an Act Authorizing the Transfer of Certain Property for Wildlife , or other purposes (16 U.S.C. 667b), and the Migratory Bird Conservation Act (16 U.S.C. 715d).

Featherstone National Wildlife Refuge
Date Established: 23 February 1970

Establishing Authorities: Featherstone NWR (Featherstone Refuge) was established under Public Law 91-499 (1970).

Occoquan Bay National Wildlife Refuge
Date Established: 28 June 1998

Establishing Authorities: Occoquan Bay NWR (Occoquan Refuge) was established under the Act Authorizing the Transfer of Certain Property for Wildlife, or other purposes (16 U.S.C. 667b).

REFUGE PURPOSE(S):

Elizabeth Hartwell Mason Neck National Wildlife Refuge
Purpose(s) for which Refuge was established: Lands acquired under the Endangered Species Act are "… to conserve (A) fish or wildlife which are listed as endangered species or threatened species …. Or (B) plants …" (16 U.S.C. § 1534); lands acquired under the Refuge Recreation Act were found to be "… suitable for– (1) incidental fish and wildlife-oriented recreational development, (2) the protection of natural resources, (3) the conservation of endangered species or threatened species …" 16 U.S.C. § 460k-1 "… the Secretary … may accept and use … real … property. Such acceptance may be accomplished under the terms and conditions of restrictive covenants imposed by donors …" (16 U.S.C. 460[k] – 460[k][4]); lands acquired under the Act Authorizing the Transfer of Certain Property for Wildlife , or other purposes were established for their "… particular value in carrying out the national migratory bird management program." (16 U.S.C. § 667b); and lands acquired under the Migratory Bird Conservation Act were "… for use as an inviolate sanctuary, or for any other management purpose, for migratory birds." (16 U.S.C. § 715d).

Featherstone National Wildlife Refuge
Purpose(s) for which Refuge was established: Lands acquired under Public Law 91-499 (1970) were established to "... to protect the natural features of a contiguous wetland area." Public Law 91-499 (1970), dated Oct. 22, 1970.

Occoquan Bay National Wildlife Refuge
Purpose(s) for which Refuge was established: Lands acquired under the Act Authorizing the Transfer of Certain Property for Wildlife , or other purposes were established for their "… particular value in carrying out the national migratory bird management program." (16 U.S.C. § 667b)

NATIONAL WILDLIFE REFUGE SYSTEM MISSION:

"To administer a national network of land and waters for the conservation, management, and where appropriate, the restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans (National Wildlife Refuge System Improvement Act of 1997, Public Law 105-57)."

DESCRIPTION OF USE:

(a) What is this use? Is it a priority public use?
This use is for competitive and non-competitive outdoor events, such as foot and/or wellness and physical fitness events, fishing derbies, clean-ups, or youth scavenger hunts, sponsored by private, charitable, and other non-profit clubs or groups, that provide for an interpretive, wildlife observation, and/or environmental education opportunity, and contribute to the public's understanding and appreciation of the Refuge's natural resources. These events are not considered priority public uses of the National Wildlife Refuge System under the National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd-668ee), as amended by the National Wildlife Refuge System Improvement Act of 1997 (Public Law 105-57). Such activities do, however, assist in pursuing the recent national initiative supported by the Service, in terms of "Connecting People with Nature" through healthy outdoor experiences in natural settings provided by public lands. These events primarily include walks, such as the Volksmarch on open trails, but may also include bicycle rides on the Wildlife Drive at Occoquan Bay or on the High Point Trail at Elizabeth Hartwell Mason Neck. Or, an event may be a run, such as the Eagle Run or the Hartwell Day Run. Other regularly occurring events include shoreline clean-up days. Events are held one to five times, annually, and occur at different times throughout the year. Events may have up to 250 participants, although generally less than 100. Participants use established roads and trails that are already open to the public. Clean-up events may include all portions of the Refuge. Participants in clean-ups generally work on shoreline areas or seasonally flooded bottomlands where debris is deposited.

(b) Where would the use be conducted?
Outdoor events would be allowed on any public use trail or area deemed as open to public access within the Complex. This includes the trails on all refuges and at the proposed new headquarters/visitor contact station and any additional planned trails. This use would not be permitted in areas managed for habitat conservation or wildlife protection.

(c) When would the use be conducted?
Elizabeth Hartwell Mason Neck NWR: Year-round, during refuge hours of operation (typically April 1- September 30 from 7:00 AM to 7:00 PM and October 1 – March 31 from 7:00 AM to 5:00 PM). A temporary closure to these activities would be implemented during any scheduled Refuge hunt dates.

Occoquan Bay NWR: Year-round, during refuge hours of operation (typically April 1- September 30 from 7:00 AM to 7:00 PM and October 1 – March 31 from 7:00 AM to 5:00 PM). A temporary closure to these activities would be implemented during any scheduled Refuge hunt dates.

Featherstone NWR: Assuming trails have been developed and public access is available, year-round, during refuge hours of operation (typically April 1- September 30 from 7:00 AM to 7:00 PM and October 1 – March 31 from 7:00 AM to 5:00 PM). A temporary closure to these activities would be implemented during any scheduled Refuge hunt dates.

(d) How would the use be conducted?
Each request must be presented in writing with details of who, what, where, when, why, and how the event will be conducted. Each request has different logistics, and therefore, would be evaluated for impacts on the Refuge mission. Using professional judgment, as long as there is no significant negative impact to natural resources or visitor services, or violation of Refuge regulations, a Special Use Permit will be issued outlining the framework in which this use can be conducted. Refuge staff will ensure compliance with the Permit.

(e) Why is this use being proposed?
Each year the Potomac River NWR Complex receives requests to conduct outdoor events. Every time the request is made, we initially evaluate the impacts of the request, and if found to be minimal, issue a Special Use Permit. Allowing special outdoor events will provide a controlled arena for introducing the public to the wildlife values of the Refuge. Two events currently occur each year: (1) the Eagle Run in January of each year and; (2) the Hartwell Day Run in April of each year. In some instances, pre-event orientations designed to promote resource conservation and natural resource stewardship will be provided to the event organizer, allowing event participants to receive interpretive and environmental education messages.

AVAILABILITY OF RESOURCES:

Permitting this use is within the resources available to administer our Visitor Services Program. Additional staff costs are incurred to review each request, coordinate with the outside entity and process a Special Use Permit, if necessary. Compliance with the terms of the Permit is within the regular duties of the Law Enforcement Officer. Anticipated costs are:

- Senior Refuge Biologist (GS-12) and/or GS-09 Refuge Biologist (review request) - 1 day/yr. = **$325**
- Visitor Services Manager (GS-12) and/or GS-09 Refuge Operations Specialist (coordinate with entity) - 1 day/yr. = **$348**
- Refuge Manager (GS-14) (review and approval) - 1 day/yr. = **$416**
- Deputy Refuge Manager (GS-11) (review request, process and issue SUP) – 3 days/yr. = **$870**
- Law Enforcement Officer (GS-09) (enforcement patrols) 1 day/yr. = **$208**

ANTICIPATED IMPACTS OF THE USE:

Conflicts may occur when humans and wildlife are both present in close proximity. Standard and special permit stipulations would strictly limit any adverse conditions that may affect wildlife, thereby mitigating such risk. Outdoor events will occur in areas of the Refuge that are already identified more for their public use value than for habitat. Therefore, no significant adverse impacts from this use are anticipated.

Direct impacts have an immediate affect on wildlife. We expect those impacts to include the presence of humans disturbing wildlife, which typically results in a temporary displacement without long-term effects on wildlife individuals or populations. Some species will avoid the areas people frequent, such as the developed trails and the buildings, while others seem unaffected by or even drawn to the presence of humans. Overall, human effects should not be significant, because most of the Refuge will experience minimal public use.

Potential impacts to birds: An indirect benefit to upland habitats and associated species would derive from careful, strategic placement of trails and event locales. Public awareness and appreciation of the refuge, its habitats, and resources would inspire some to volunteer or in other ways support the refuge needs and conservation of resources on the landscape in general. Increases in annual visitor numbers from constructing new trails along Treestand and Sycamore Roads and improvements to the existing public trails at Mason Neck, trails at Occoquan Bay, and new trails at Featherstone, and other planned activities described herein have the potential to cause disturbance to nesting, migrating, and wintering birds. However, the potential impacts vary due to each refuge's respective habitat management scenario and the types of visitor use. Direct impacts on wildlife in the form of disturbance can be expected wherever humans have access to an area, and the degree

may vary depending on the habitat type. In general, human presence disturbs most wildlife, which typically results in a temporary displacement without long-term effects on individuals or populations.

Conflicts arise when migratory birds and humans are present in the same areas (Boyle and Samson, 1985). Response of wildlife to human activities includes: departure from site (Owen 1973, Burger 1981, Korschgen et al., 1985, Henson and Grant 1991, Kahl 1991, Klein 1993), use of suboptimal habitat (Erwin 1980, Williams and Forbes 1980), altered behavior (Burger 1981, Korschen et al., 1985, Morton et al., 1989, Ward and Stehn 1989, Havera et al., 1992, Klein 1993), and increase in energy expenditure (Morton et al., 1989, Belanger and Bedard 1990). McNeil et al. (1992) found that many waterfowl species avoid disturbance by feeding at night instead of during the day. The location of recreational activities impacts species in different ways. Miller et al. (1998) found that nesting success was lower near recreational trails, where human activity was common, than at greater distances from the trails. A number of species have shown greater reactions when pedestrian use occurred off trail (Miller, 1998). In addition, Burger (1981) found that wading birds were extremely sensitive to disturbance in the northeastern U.S. In regard to waterfowl, Klein (1993) found migratory dabbling ducks to be the most sensitive to disturbance and migrant ducks to be more sensitive when they first arrived, in the late fall, than later in winter. She also found gulls and sandpipers to be apparently insensitive to human disturbance, with Burger (1981) finding the same to be true for various gull species.

For songbirds, Gutzwiller et al. (1997) found that singing behavior of some species was altered by low levels of human intrusion. Pedestrian travel can impact normal behavioral activities, including feeding, reproductive, and social behavior. Studies have shown that ducks and shorebirds are sensitive to pedestrian activity (Burger, 1981; 1986). Resident waterbirds tend to be less sensitive to human disturbance than migrants, and migrant ducks are particularly sensitive when they first arrive (Klein, 1993). In areas where human activity is common, birds tolerated closer approaches than in areas receiving less activity. Some species, such as wood thrush, will avoid areas frequented by people, such as developed trails and buildings, while other species, particularly highly social species such as eastern tufted titmouse, Carolina chickadee, or Carolina wren, seem unaffected or even drawn to a human presence. When visitors approach too closely to nests, they may cause the adult bird to flush exposing the eggs to weather events or predators. Provided that visitor use is confined to trails, disturbance during the breeding season will be limited to the trail area. The extent of this disturbance on either side of the trail also depends on visibility, the density of vegetation through which the trail is laid. Overall, direct impacts from non-consumptive uses should be greatly reduced if trails and other high-use facilities avoid area-sensitive habitats (interiors of grasslands).

Laskowski et al. (1993), studied behavior of snowy egrets, female mallards, and greater yellowlegs on Back Bay NWR in Virginia Beach, VA. The study location was within 91.4 meters of impoundment dikes used by the general public. Behavior of snowy egrets was recorded during August and September 1992 to represent post-breeding marsh and wading birds. Mallards were monitored during migration (November 1992) and during the winter January (1993). Greater yellowlegs' behavior was observed during the northward shorebird migration (May 1993). Behavior was monitored during the typical public activities of walking, bicycling, and driving a vehicle past the sample sites.

The study found that snowy egret resting behavior decreased and alert behavior increased in the presence of humans. Preening decreased when humans were present, but this change was not significant. Feeding, walk/swim, and flight behaviors were not related to human presence. Female mallards in November increased feeding, preening and alert behaviors in the presence of humans. Resting, walk/swim, and flight behavior were not influenced by human presence. In January, female mallard resting and preening behavior were not influenced by the presence of humans. However, feeding, alert, walk/swim, and flight behaviors were related to human presence. Greater yellowlegs increased alert behavior in the presence of humans. No other behaviors were affected. Maintenance behavior (combined feeding, resting, and preening) decreased when humans were present for all study species. In addition, this decrease was accompanied by an increase in escape behavior by each species. Maintenance behavior of mallards in January decreased in the presence of vehicles and combined disturbance. Escape behavior increased when vehicles were present. Maintenance behavior of greater yellowlegs declined when bicycles and vehicles were present but was not influenced by pedestrian presence.

The presence of bicycles and vehicles increased escape behavior. Snowy egrets and female mallards increased movement between subplots and to areas within the study area but further from the disturbance.

During a five year study which involved nine different species of birds, they found only minimal evidence that intrusion affected bird distributions (Gutzwiller and Anderson, 1999). This study also found that the species affected by intrusion were not consistent from year to year or within study areas and could be due to habituation of intrusion (Gutzwiller and Anderson, 1999).

Potential impacts to threatened and endangered species: We included bald eagles in this section due to the fact that they were a focal species during refuge establishment at Mason Neck and because of the extra protection they are afforded under the Bald and Golden Eagle Protection Act. Permitting public access to any waterfront or marsh managed by the refuge holds the possibility of impacting bald. Impacts may either be displacement or temporary disturbance depending on the extent of use of a given site by visitors and eagles. We plan to continue to allow use public trails and areas open to the general public for events, which include but are not limited to Woodmarsh and Joseph V. Gartlan, Jr. Great Marsh Trail, the proposed Sycamore Trail and Treestand Trail at Mason Neck; along the open public areas and trails/roads at Occoquan Bay; and along the proposed open areas or trails at Featherstone. All of these areas are adjacent to water bodies used by bald eagles, some in high concentrations and for nesting. As trees mature and forest riparian buffers are improved, sites with low concentrations will likely increase in importance to bald eagles. We will avoid potential adverse impacts to bald eagles by strictly following the management guidelines developed by state and federal agencies. These include sight and distance setbacks from nests and concentration areas and time-of-year restrictions.

Potential impacts to wetlands: Potential adverse impacts to wetlands could arise if public use were allowed to occur directly in wetlands, or if erosion of sediments into wetlands was allowed to occur during facility of an event. We will manage events to ensure that minimal to no impacts will occur in this manner.

Potential impacts to other fish and wildlife: Mammals in Virginia occupy a diverse array of habitat types, ecological niches, and food webs and play an important role in the ecosystems in the refuge boundary. As a taxonomic group, mammals will also benefit from the refuge land protection and management actions relative to riparian habitats, forests, grasslands, shrub, and wetlands proposed for listed species, waterfowl, and migratory birds. Likewise, the refuge will benefit from careful attention to the impacts to mammals resulting from any of its activities. We evaluated the management actions and public uses proposed for each of the refuge CCP alternatives for their potential to benefit or adversely affect large and small, aerial, terrestrial, and wetland mammals. The activities described in this determination should have no long-term impact on mammal use of the refuge.

Protection and good stewardship of the area's herpetofauna is another priority of the Refuge, and fits into nearly all the goals for wetlands, uplands, and riparian habitats. We evaluated the public uses described herein for their potential to benefit or adversely affect amphibians and reptiles or their habitats used for mating, reproduction, over-wintering, and foraging. Although most species that occur on the refuge are very common and widespread, there is concern for two species of turtle: eastern box and spotted, and amphibians everywhere are considered to be experiencing a general decline. Some areas are experiencing loss of mixed mature forest due to development or high rates of conversion to timber farms. This impacts vernal pools needed by amphibians for over-wintering and reproduction. No vernal pools will be impacted by these proposed activities. Public outreach and education efforts by the refuge that emphasize buffering of wetlands, connectivity and easy access between forest, grassland, and wetlands, protection of vernal pools, and augmentation of patch size will benefit amphibians and reptiles on an even larger scale where embraced by other landowners.

Sometimes maintenance actions for public use may involve preparations or outcomes that have direct negative impacts to amphibians and reptiles. Mowing of grassy access roads and public use trails occasionally destroys turtles, snakes or frogs if conducted during times of movement (warm months). The best way to minimize this direct type of negative impact is to keep public use and access roads mowed short so that they do not become attractive habitat. However, in many cases it will be impossible to find a perfect time to carry out maintenance actions that will completely avoid conflict for wildlife. Opening a limited amount of habitat for the public to experience and appreciate through a network of interpretive trail systems and outdoor classroom sites should heighten an awareness of the habitat needs and plight of declining reptiles and amphibians in the minds of children and adults. There is limited opportunity outside the refuge boundary area for adults to be exposed to the more reticent, uncommon, or interior species of reptiles and amphibians in natural habitats. Adults are homeowners, landowners, land managers, and land-use decision makers, and they have considerable influence on the value systems of children.

Opportunities to learn and marvel about the habits, appearance, and needs of reptiles and amphibians and their role in the ecosystem will indirectly benefit this group of animals if these learning experiences translate into beneficial changes in landscaping, yard maintenance, pesticide use, and management of towns and communities.

Enhancement and expansion of the trail systems for public use poses the potential threat of blocking access between different habitat types, depending on the placement, length, width, and substrate material of the trails. Some salamander species will not cross openings that are too wide or dry, bare ground (Vinson 1998),

thus earthen trails, if exposed to sunlight could become dry enough to form a barrier. Gravel roads or trails, even though thought to be permeable, also act as a barrier to salamander movement (Marsh et al. 2005). The trails will therefore be located on level terrain, avoiding ravines which are home to amphibians and reptiles. At most these trails will be five miles in length on Mason Neck and Occoquan Bay and will be no more than 4 miles in length at Featherstone, and their widths no more than six feet. Disturbance to basking or nesting turtles may occur where public use is concentrated at points where land and water interface. Basking turtles can usually find alternate resting surfaces. Nesting turtles, once engaged in the act of digging usually will not allow their attention to be drawn to anything else, and at such time are vulnerable to predators. A turtle wishing to make landfall to attempt egg-laying however, may be dissuaded by the presence of humans at the site. Because there will be ample wetland-forest-grassland interface elsewhere, we expect that the cumulative impact of roads and trails to amphibians and reptiles at the landscape scale will be insignificant. Artificial illumination may have both positive and negative impacts on the nocturnal behavior and ecology of frogs (Buchanan 2002) and salamanders (Wise and Buchanan 2002). While it may enhance prey detection it may also hurt predator avoidance, cause aggression between individuals of the same species, cause temporary blindness in frogs (sudden bright light), disrupt or confuse migration to or from ponds for salamanders (Wise and Buchanan 2002) or inhibit reproduction by frogs adapted to low illumination (Buchanan 2002).

Potential Impacts to habitat: People can be vectors for invasive plants by moving seeds or other propagules from one area to another. Once established, invasive plants can out-compete native plants, thereby altering habitats and indirectly impacting wildlife. The threat of invasive plant establishment will always be an issue requiring annual monitoring and treatment when necessary. Our staff will work at eradicating invasive plants and educating the visiting public. Also, opening the lands within the Complex to public use can often result in littering, vandalism, or other illegal activities.

Cumulative Impacts: In summary, our research, observations and knowledge of the area provide no evidence that cumulatively, the visitor activities we propose to allow will have an unacceptable effect on wildlife resources or their habitats.

Impacts may be minor when we consider them alone, but may become important when we consider them collectively. Our principal concern is repeated disruptions of nesting, resting, or foraging birds. Our knowledge and observations of the affected areas show no evidence that these four, priority, wildlife-dependent uses cumulatively will adversely affect the wildlife resource. Although we do not expect substantial cumulative impact from this use in the near term, it will be important for Refuge staff to monitor this use and, if necessary, respond to conserve high-quality wildlife resources.

We do not expect a substantial increase in the cumulative effects of visitor use over the 15 year timeframe of this plan. Staff, in collaboration with volunteers, will monitor and evaluate the effects of this use to discern and respond to any unacceptable impacts on wildlife or habitats. To mitigate those impacts, the Complex will continue to close areas to the public to protect wildlife during critical life periods.

PUBLIC REVIEW AND COMMENT:

As part of the Elizabeth Hartwell Mason Neck/Featherstone CCP process, this compatibility determination will undergo extensive public review, including a comment period of 45 days following the release of the Draft CCP/EA.

DETERMINATION (CHECK ONE BELOW):

_____ Use is not compatible

__**X**__ Use is compatible with the following stipulations

STIPULATIONS NECESSARY TO ENSURE COMPATIBILITY:

Each request must be presented in writing with details of who, what, where, when, why, and how the event will be conducted. Each request will then be evaluated for impacts to the Refuge. All current Refuge regulations

and standard Special Use Permit stipulations will apply, along with special stipulations, depending on the nature and scope of the event to be permitted.

- See section A above for a detailed description of use and initial boundaries.
- A refundable bond may be taken to ensure that any facility or resource damage is repaired or restored.
- Event permit holders will be invoiced for any necessary Refuge staff overtime associated with managing the permit, and coordinating the special event with other Refuge activities.
- Group size may not exceed 250 individuals and may be further limited, depending upon the nature and scope of the event, and a management evaluation of public safety and resource protection risk.
- Based upon professional judgment, and as long as there is no significant negative impact to natural resources or visitor services, or violation of Refuge regulations, a Special Use Permit can be issued outlining the framework within which this use can be conducted.

JUSTIFICATION:

We currently allow hunting, wildlife observation, photography, environmental education and interpretation. Events that are not considered priority public uses, such as races or competitions, are conducted by means of a compatible use. Although these uses do not directly contribute to the achievement of the Refuge purposes or the National Wildlife Refuge System mission, they do provide for an interpretive, wildlife observation, and/or environmental education opportunity, thereby contributing to the public's understanding and appreciation of the Refuge's natural resources. Therefore, a group event can be compatible as long as it is appropriate, conducted safely, and does not conflict with priority uses on the Refuge.

SIGNATURE:

Refuge Manager: _____ _____
(Signature) (Date)

CONCURRENCE:

Regional Chief: _____ _____
(Signature) (Date)

MANDATORY 10 YEAR RE-EVALUATION DATE: _____

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FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Potomac River NWR Complex (Elizabeth Hartwell Mason Neck, Occoquan Bay, and Featherstone NWR's)

Use: Research (including inventories and monitoring)

This form is not required for wildlife-dependent recreational uses, take regulated by the State, or uses already described in a refuge CCP or step-down management plan approved after October 9, 1997.

Decision Criteria:	**YES**	**NO**
(a) Do we have jurisdiction over the use?	✔	
(b) Does the use comply with applicable laws and regulations (Federal, State, tribal, and local)?	✔	
(c) Is the use consistent with applicable Executive orders and Department and Service policies?	✔	
(d) Is the use consistent with public safety?	✔	
(e) Is the use consistent with goals and objectives in an approved management plan or other document?	✔	
(f) Has an earlier documented analysis not denied the use or is this the first time the use has been proposed?	✔	
(g) Is the use manageable within available budget and staff?	✔	
(h) Will this be manageable in the future within existing resources?	✔	
(i) Does the use contribute to the public's understanding and appreciation of the refuge's natural or cultural resources, or is the use beneficial to the refuge's natural or cultural resources?	✔	
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see section 1.6D, 603 FW 1, for description), compatible, wildlife-dependent recreation into the future?	✔	

Where we do not have jurisdiction over the use ["no" to (a)], there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe ["no" to (b), (c), or (d)] may not be found appropriate. If the answer is "no" to any of the other questions above, we will **generally** not allow the use.

If indicated, the refuge manager has consulted with State fish and wildlife agencies. Yes ✔ No _____.

When the refuge manager finds the use appropriate based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is that the proposed use is:

Not Appropriate _____ **Appropriate** ✔

Refuge Manager: _____ Date: _____

If found to be **Not Appropriate**, the refuge supervisor does not need to sign concurrence if the use is a new use.

If an existing use is found **Not Appropriate** outside the CCP process, the refuge supervisor must sign concurrence.

If found to be **Appropriate**, the refuge supervisor must sign concurrence:

Refuge Supervisor: _____ Date: _____

A compatibility determination is required before the use may be allowed.

JUSTIFICATION FOR A FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Potomac River NWR Complex (Elizabeth Hartwell Mason Neck, Occoquan Bay, and Featherstone NWR's)

Use: Research (including inventories and monitoring)

NARRATIVE:

The use is research conducted by non-Service personnel on the Potomac River NWR Complex (Complex). It is not a priority public use of the National Wildlife Refuge System under the National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd-668ee), as amended by the National Wildlife Refuge System Improvement Act of 1997 (Public Law 105-57). Research has been found to be appropriate for the Potomac River NWR Complex.

The Potomac River NWR Complex does not have the resources to conduct all the necessary surveys and studies to manage all resources or to conduct studies which benefit natural resources in general. Therefore, we encourage research by outside entities to assist us in collecting and providing data for our wise use. All research proposals are evaluated for their benefits to the Refuge mission and issued a Special Use Permit if found beneficial. All research projects require the principle investigator to provide summary reports of findings and acknowledge the Potomac River NWR Complex for their participation.

COMPATIBILITY DETERMINATION

USE:

Research (including inventories and monitoring)

REFUGE NAME:

Elizabeth Hartwell Mason Neck, Featherstone and Occoquan Bay National Wildlife Refuges (Potomac River National Wildlife Refuge Complex)

ESTABLISHING AND ACQUISITION AUTHORITY(IES):

The Potomac River National Wildlife Refuge Complex is composed of three nationally significant wildlife areas: Mason Neck, Featherstone, and Occoquan Bay National Wildlife Refuges.

Each National Wildlife Refuge (NWR) is established under specific legislation or administrative authority. Similarly, each refuge has one or more specific legal purposes for which it was established. The establishing legislation or authority and the purposes for each refuge in the Potomac River NWR Complex (Refuge Complex) are provided below:

Elizabeth Hartwell Mason Neck National Wildlife Refuge
Date Established: 1 February 1969

Establishing Authorities: Elizabeth Hartwell Mason Neck NWR (Mason Neck Refuge) was established under the Endangered Species Act (16 U.S.C. 1534), the Refuge Recreation Act (16 U.S.C. 460[k] – 460[k][4]), an Act Authorizing the Transfer of Certain Property for Wildlife , or other purposes (16 U.S.C. 667b), and the Migratory Bird Conservation Act (16 U.S.C. 715d).

Featherstone National Wildlife Refuge
Date Established: 23 February 1970

Establishing Authorities: Featherstone NWR (Featherstone Refuge) was established under Public Law 91-499 (1970).

Occoquan Bay National Wildlife Refuge
Date Established: 28 June 1998

Establishing Authorities: Occoquan Bay NWR (Occoquan Refuge) was established under the Act Authorizing the Transfer of Certain Property for Wildlife, or other purposes (16 U.S.C. 667b).

REFUGE PURPOSE(S):

Elizabeth Hartwell Mason Neck National Wildlife Refuge
Purpose(s) for which Refuge was established: Lands acquired under the Endangered Species Act are "… to conserve (A) fish or wildlife which are listed as endangered species or threatened species …. Or (B) plants …" (16 U.S.C. § 1534); lands acquired under the Refuge Recreation Act were found to be "… suitable for– (1) incidental fish and wildlife-oriented recreational development, (2) the protection of natural resources, (3) the conservation of endangered species or threatened species …" 16 U.S.C. § 460k-1 "… the Secretary … may accept and use … real … property. Such acceptance may be accomplished under the terms and conditions of restrictive covenants imposed by donors …" (16 U.S.C. 460[k] – 460[k][4]); lands acquired under the Act Authorizing the Transfer of Certain Property for Wildlife , or other purposes were established for their "… particular value in carrying out the national migratory bird management program." (16 U.S.C. § 667b); and lands acquired under the Migratory Bird Conservation Act were "… for use as an inviolate sanctuary, or for any other management purpose, for migratory birds." (16 U.S.C. § 715d).

Featherstone National Wildlife Refuge
Purpose(s) for which Refuge was established: Lands acquired under Public Law 91-499 (1970) were established to "... to protect the natural features of a contiguous wetland area." Public Law 91-499 (1970), dated Oct. 22, 1970.

Occoquan Bay National Wildlife Refuge
Purpose(s) for which Refuge was established: Lands acquired under the Act Authorizing the Transfer of Certain Property for Wildlife , or other purposes were established for their "… particular value in carrying out the national migratory bird management program." (16 U.S.C. § 667b)

NATIONAL WILDLIFE REFUGE SYSTEM MISSION:

"To administer a national network of land and waters for the conservation, management, and where appropriate, the restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans (National Wildlife Refuge System Improvement Act of 1997, Public Law 105-57)."

DESCRIPTION OF USE:

(a) What is this use? Is it a priority public use?
The use is research (including inventories and monitoring) conducted by non-Service personnel on the Potomac River NWR Complex (Complex). It is not a priority public use of the National Wildlife Refuge System under the National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd-668ee), as amended by the National Wildlife Refuge System Improvement Act of 1997 (Public Law 105-57).

There is much that can be learned from field research within the Refuge. Baseline information in the biological, geophysical, hydrological and other fields is still in need of being collected. There are many opportunities for consultants, colleges and universities, and other agencies and/or organizations to obtain permission to conduct critical and noteworthy research on the Refuge.

Two provisions of the National Wildlife Refuge Improvement Act are to "maintain biological integrity, diversity and environmental health" and to conduct "inventory and monitoring." Monitoring and research are an integral part of National Wildlife Refuge management. Plans and actions based on thorough research and consistent monitoring provide an informed approach to management affects on wildlife and habitat.

Currently, research applicants are required to submit a proposal that outlines: (1) objectives of the study; (2) justification for the study; (3) detailed methodology and schedule; (4) potential impacts on Refuge wildlife or habitat, including disturbance (short and long term), injury, or mortality (this includes a description of measures the researcher will take to reduce disturbance or impacts); (5) research personnel required; (6) costs to Refuge, if any; and (7) progress reports and end products (i.e., reports, thesis, dissertations, publications). Research proposals are reviewed by Refuge staff and conservation partners, as appropriate, for approval. Evaluation criteria currently include, but are not limited to, the following:

- Research that will contribute to specific Refuge management issues will be given higher priority over other research requests.
- Research that will conflict with other ongoing research, monitoring, or management programs will not be granted.
- Research projects that can be accomplished off-Refuge are less likely to be approved.
- Research which causes undue disturbance or is intrusive will likely not be granted. Level and type of disturbance will be carefully evaluated when considering a request.
- Refuge evaluation will determine if any effort has been made to minimize disturbance through study design, including considering adjusting location, timing, scope, number of permittees, study methods, number of study sites, etc.

- If staffing or logistics make it impossible for the Refuge to monitor researcher activity in a sensitive area, the research request may be denied, depending on the specific circumstances.

- The length of the project will be considered and agreed upon before approval. Projects will be reviewed annually.

(b) Where would the use be conducted?
The locations of the research will vary, depending on the research project being conducted. The entire Complex is open and available for scientific research. A research project is usually limited to a particular habitat type, plant or wildlife species. On occasion, research projects will encompass an assemblage of habitat types, plants or wildlife. The locations will be limited to those areas of the refuge that are absolutely necessary for conducting the research and that do not create a significant negative impact to Refuge operations and wildlife use.

(c) When would the use be conducted?
The timing of the research will depend entirely on the research project needs. We will allow scientific research on the Complex throughout the year, as long as that use does not present a significant negative impact to wildlife use and management operations. Some projects could be short-term in design, requiring one or several visits over the course of a few days or weeks. Others could be multiple year studies that require more frequent visits to the location. The timing of each use will be limited to the minimum required for completion. If a research project occurs during any Refuge hunting program, special precautions will be required and enforced to ensure public health and safety.

(d) How would the use be conducted?
The mechanics of the research work will depend entirely on the individual research project. We will carefully scrutinize the objectives, methods, and approach of each research project before allowing it to occur on the Complex. We will not permit a research project that lacks an approved study plan and protocol, compromises public health and safety or presents a significant negative impact to wildlife resources within the Complex. This permitted research use must be regulated and governed by the conditions and other terms of a Refuge special use permit (SUP). The SUP will provide any needed protection to individual Refuge policies, mission, wildlife populations, and natural habitats. In addition, all research projects require the primary investigator to submit written summary reports of all findings, and acknowledge the Complex's participation.

(e) Why is this use being proposed?
Research by non-Service personnel is conducted by colleges, universities, federal, state, and local agencies, non-governmental organizations, and qualified members of the public. Such studies further our understanding of the natural environment that we are responsible for managing. Research is therefore an important part of the adaptive management process that often results in improved management of refuge habitats and wildlife populations. Much of the information that research generates can be applied to management practices both on and adjacent to the Complex.

The Service encourages and supports research and management studies on refuge lands that will improve and strengthen decisions for managing natural resources. The Refuge Manager encourages and seeks research that clearly relates to approved refuge objectives, improves habitat management, and promotes adaptive management. Priority research addresses information on better managing the Nation's biological resources that generally are important to agencies of the Department of Interior, the National Wildlife Refuge System, and State Fish and Game Agencies, and that address important management issues, or demonstrate techniques for managing species or habitats.

The Complex will also consider research for other purposes that may not relate directly to Refuge-specific objectives, but contribute to the broader enhancement, protection, use, preservation or management of native populations of fish, wildlife and plants, and their natural diversity in the Northeast Region and/or the Atlantic Flyway. All proposals must comply with Service policy on compatibility.

AVAILABILITY OF RESOURCES:

The costs for administering and managing research opportunities at the Potomac River NWR Complex involves personnel time required to review research proposals submitted. The research incumbent will then be

responsible to develop, operate and maintain the research project as specified in the Special Use Permit, the Cooperative Agreement, or Memorandum of Understanding.

Anticipated costs are:

- Senior Refuge Biologist (GS-12) and/or GS-09 Refuge Biologist (review request) -1 day/yr. = **$325**
- Visitor Services Manager (GS-12) and/or GS-09 Refuge Operations Specialist (coordinate with entity) - 1 day/yr. = **$348**
- Refuge Manager (GS-14) (review and approval) - 1 day/yr. = **$416**
- Deputy Refuge Manager (GS-11) (review request, process and issue SUP) – 3 days/yr. = **$870**
- Law Enforcement Officer (GS-09) (enforcement patrols) 1 day/yr. = **$208**

ANTICIPATED IMPACTS OF THE USE:

The service encourages approved research projects to further the understanding of natural resource problems which will, in turn, increase our ability to manage our trust resources. Properly conducted studies will have little negative impact on refuge flora, fauna, or wildlife species.

Ideally, any research project conducted on the refuge would positively contribute to one or more of our interim objectives. There may be short-term disturbance to plants and wildlife during field investigations, but this is unavoidable in most cases. We will conduct Intra-Service Section 7 Biological Evaluations for any proposal that could be anticipated to have an impact on any federally threatened or endangered species. We will ensure that the refuge or any non-Service researchers obtain any special permits, including collection and banding permits, required by State or Federal law prior to issuing a SUP.

PUBLIC REVIEW AND COMMENT:

As part of the Elizabeth Hartwell Mason Neck/Featherstone CCP process, this compatibility determination will undergo extensive public review, including a comment period of 45 days following the release of the Draft CCP/EA.

DETERMINATION (CHECK ONE BELOW):

_____ Use is not compatible

__X__ Use is compatible, with the following stipulations

STIPULATIONS NECESSARY TO ENSURE COMPATIBILITY:

The criteria for evaluating a research proposal, outlined in the Description of Use section above, will be used when determining whether a proposed study will be approved on the Refuge. If proposed research methods are evaluated and determined to have potential adverse impacts on refuge wildlife or habitat, then the refuge would determine the utility and need of such research to conservation and management of refuge wildlife and habitat. If the need was demonstrated by the research permittee and accepted by the refuge, then measures to minimize potential impacts (e.g., reduce the numbers of researchers entering an area, restrict research in specified areas) would be developed and included as part of the study design and on the SUP. SUPs will contain specific terms and conditions that the researcher(s) must follow relative to activity, location, duration, seasonality, etc. to ensure continued compatibility. All Refuge rules and regulations must be followed unless alternatives are otherwise accepted in writing by Refuge management.

All information, reports, data, collections, or documented sightings and observations, that are obtained as a result of this permit are the property of the Service and can be accessed by the Service at any time from the permittee at no cost, unless specific written arrangements are made to the contrary. The Refuge also requires the submission of annual or final reports and any/all publications associated with the work done on the Refuge. Each SUP may have additional criteria. Each SUP will also be evaluated individually to determine if a fee will be charged and for the length of the permit.

Extremely sensitive wildlife habitat areas would be avoided unless sufficient protection from research activities (i.e., disturbance, collection, capture and handling) is implemented to limit the area and/or wildlife potentially impacted by the proposed research. Where appropriate, some areas may be temporarily/seasonally closed so that research would be permitted when impacts to wildlife and habitat are less of a concern. Research activities will be modified to avoid harm to sensitive wildlife and habitat when unforeseen impacts arise.

Refuge staff will monitor researcher activities for potential impacts to the refuge and for compliance with conditions on the SUP. The refuge manager may determine that previously approved research and special use permits be terminated due to observed impacts. The refuge manager will also have the ability to cancel a SUP if the researcher is out of compliance with the stated conditions.

JUSTIFICATION:

This program as described is determined to be compatible. Any potential negative impacts of research activities on the resources of the Potomac River NWR Complex will be minimized by the restrictions included in the SUP special conditions. In addition, the research study design and researcher activities will be regulated and monitored by Refuge staff.

The Service encourages approved research to further our understanding of refuge natural resources and management. Research by non-Service personnel adds greatly to the information base for refuge managers to make proper decisions and practice adaptive management. Research conducted by non-Service personnel will not materially interfere with or detract from the mission of the National Wildlife Refuge System or the purposes for which the refuge was established. In most cases it should supplement them.

SIGNATURE:

Refuge Manager: _____ _____
(Signature) (Date)

CONCURRENCE

Regional Chief: _____ _____
(Signature) (Date)

MANDATORY 10 YEAR RE-EVALUATION DATE: _____

FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Potomac River NWR Complex (Elizabeth Hartwell Mason Neck, Occoquan Bay, and Featherstone NWR's)

Use: Non-motorized Modes of Access on Designated Trails

This form is not required for wildlife-dependent recreational uses, take regulated by the State, or uses already described in a refuge CCP or step-down management plan approved after October 9, 1997.

Decision Criteria:	**YES**	**NO**
(a) Do we have jurisdiction over the use?	✔	
(b) Does the use comply with applicable laws and regulations (Federal, State, tribal, and local)?	✔	
(c) Is the use consistent with applicable Executive orders and Department and Service policies?	✔	
(d) Is the use consistent with public safety?	✔	
(e) Is the use consistent with goals and objectives in an approved management plan or other document?	✔	
(f) Has an earlier documented analysis not denied the use or is this the first time the use has been proposed?	✔	
(g) Is the use manageable within available budget and staff?	✔	
(h) Will this be manageable in the future within existing resources?	✔	
(i) Does the use contribute to the public's understanding and appreciation of the refuge's natural or cultural resources, or is the use beneficial to the refuge's natural or cultural resources?	✔	
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see section 1.6D, 603 FW 1, for description), compatible, wildlife-dependent recreation into the future?	✔	

Where we do not have jurisdiction over the use ["no" to (a)], there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe ["no" to (b), (c), or (d)] may not be found appropriate. If the answer is "no" to any of the other questions above, we will **generally** not allow the use.

If indicated, the refuge manager has consulted with State fish and wildlife agencies. Yes ✔ No _____.

When the refuge manager finds the use appropriate based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is that the proposed use is:

Not Appropriate _____ **Appropriate** ✔

Refuge Manager: _____ Date: _____

If found to be **Not Appropriate**, the refuge supervisor does not need to sign concurrence if the use is a new use.

If an existing use is found **Not Appropriate** outside the CCP process, the refuge supervisor must sign concurrence.

If found to be **Appropriate**, the refuge supervisor must sign concurrence:

Refuge Supervisor: _____ Date: _____

A compatibility determination is required before the use may be allowed.

JUSTIFICATION FOR A FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Potomac River NWR Complex (Elizabeth Hartwell Mason Neck, Occoquan Bay, and Featherstone NWRs

Use: Non-motorized Modes of Access on Designated Trails

NARRATIVE:

This finding of appropriateness covers certain modes of non-motorized access on two specifically designated trails on the Refuge Complex: the High Point Trail on Mason Neck NWR and the proposed Potomac Heritage National Scenic Trail on Featherstone NWR. Specifically under consideration are jogging and non-motorized wheeled transport such as bicycles, inline-skates, scooters, and skateboards[1].

Both of these trails are part of regional transportation corridors and these modes of transport provide alternative means of access to refuge lands for visitors, including those whose origin or destination may be off-refuge land (to or from Mason Neck State Park or through Featherstone NWR on the proposed route of the Potomac Heritage National Scenic Trail). In addition to the convenience of these activities, they also allow exposure to the elements which afford visitors the opportunity to immerse themselves in nature. They also facilitate access to interpretation infrastructure and activities designed to increase the public's understanding and appreciation of the Refuge Complex's natural and cultural resources.

These uses are limited to only two specifically designated trails with hardened surfaces, where road width allows safe passage of other users. Designated trails also have sufficient viewing distance for users to detect the approach of other visitors on the refuges and maneuver to accommodate them. This minimizes conflicts with other public uses, including priority public uses. In addition, the High Point Trail is recognizable as a high-volume multi-purpose trail by virtue of its construction (e.g. asphalt with painted center line) and its proximity to a main access road. Most visitors, therefore, would not have the expectation for quiet nature viewing along this trail. There have been no complaints received about any of these non-motorized modes of access impacting Refuge Complex visitors engaged in priority public uses.

These forms of non-motorized access have therefore been found appropriate on designated trails because it is consistent with the goals of the visitor service's program for the Refuge Complex, facilitates alternative modes of transportation, and contributes to the public's understanding, appreciation, and enjoyment of the refuge's natural and cultural resources.

[1] Wheelchair use is another form of non-motorized access accommodated on the Refuge Complex. In addition to being permitted on the High Point Trail on Elizabeth Hartwell Mason Neck Refuge and the proposed Potomac Heritage National Scenic Trail on Featherstone Refuge, it is also permitted any where it can be safely accommodated on refuge roads and trails.

COMPATIBILITY DETERMINATION

USE:

Non-motorized Modes of Access on Designated Trails

REFUGE NAME:

Elizabeth Hartwell Mason Neck, Featherstone, and Occoquan Bay National Wildlife Refuges (Potomac River National Wildlife Refuge Complex)

ESTABLISHING AND ACQUISITION AUTHORITY(IES):

The Potomac River National Wildlife Refuge Complex is composed of three nationally significant wildlife areas: Mason Neck, Featherstone, and Occoquan Bay National Wildlife Refuges.

Each National Wildlife Refuge (NWR) is established under specific legislation or administrative authority. Similarly, each refuge has one or more specific legal purposes for which it was established. The establishing legislation or authority and the purposes for each refuge in the Potomac River NWR Complex (Refuge Complex) are provided below:

Elizabeth Hartwell Mason Neck National Wildlife Refuge
Date Established: 1 February 1969

Establishing Authorities: Elizabeth Hartwell Mason Neck NWR (Mason Neck Refuge) was established under the Endangered Species Act (16 U.S.C. 1534), the Refuge Recreation Act (16 U.S.C. 460[k] – 460[k][4]), an Act Authorizing the Transfer of Certain Property for Wildlife , or other purposes (16 U.S.C. 667b), and the Migratory Bird Conservation Act (16 U.S.C. 715d).

Featherstone National Wildlife Refuge
Date Established: 23 February 1970

Establishing Authorities: Featherstone NWR (Featherstone Refuge) was established under Public Law 91-499 (1970).

Occoquan Bay National Wildlife Refuge
Date Established: 28 June 1998

Establishing Authorities: Occoquan Bay NWR (Occoquan Refuge) was established under the Act Authorizing the Transfer of Certain Property for Wildlife, or other purposes (16 U.S.C. 667b).

REFUGE PURPOSE(S):

Elizabeth Hartwell Mason Neck National Wildlife Refuge
Purpose(s) for which Refuge was established: Lands acquired under the Endangered Species Act are "… to conserve (A) fish or wildlife which are listed as endangered species or threatened species …. Or (B) plants …" (16 U.S.C. § 1534); lands acquired under the Refuge Recreation Act were found to be "… suitable for– (1) incidental fish and wildlife-oriented recreational development, (2) the protection of natural resources, (3) the conservation of endangered species or threatened species …" 16 U.S.C. § 460k-1 "… the Secretary … may accept and use … real … property. Such acceptance may be accomplished under the terms and conditions of restrictive covenants imposed by donors …" (16 U.S.C. 460[k] – 460[k][4]); lands acquired under the Act

Authorizing the Transfer of Certain Property for Wildlife , or other purposes were established for their "… particular value in carrying out the national migratory bird management program." (16 U.S.C. § 667b); and lands acquired under the Migratory Bird Conservation Act were "… for use as an inviolate sanctuary, or for any other management purpose, for migratory birds." (16 U.S.C. § 715d).

Featherstone National Wildlife Refuge
Purpose(s) for which Refuge was established: Lands acquired under Public Law 91-499 (1970) were established to "... to protect the natural features of a contiguous wetland area." Public Law 91-499 (1970), dated Oct. 22, 1970.

Occoquan Bay National Wildlife Refuge
Purpose(s) for which Refuge was established: Lands acquired under the Act Authorizing the Transfer of Certain Property for Wildlife , or other purposes were established for their "… particular value in carrying out the national migratory bird management program." (16 U.S.C. § 667b)

NATIONAL WILDLIFE REFUGE SYSTEM MISSION:

"To administer a national network of land and waters for the conservation, management, and where appropriate, the restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans (National Wildlife Refuge System Improvement Act of 1997, Public Law 105-57)."

DESCRIPTION OF USE:

(a) What is the use? Is it a priority public use?
The use is certain modes of non-motorized access on two specifically designated trails on the Refuge Complex: the High Point Trail on Mason Neck NWR and the proposed Potomac Heritage National Scenic Trail on Featherstone NWR. Specifically evaluated are jogging and non-motorized wheeled transport such as bicycles, inline-skates, scooters, and skateboards. This use is not a priority public use within the National Wildlife Refuge System, but facilitates alternative modes of transportation on the Refuge Complex.

(b) Where will this use be conducted?
This use is allowed on two specifically designated trails on the Refuge Complex: the High Point Trail on Elizabeth Hartwell Mason Neck Refuge (which passes through the refuge and terminates at Mason Neck State Park) and the proposed segment of the Potomac Heritage National Scenic Trail through Featherstone Refuge. Currently, Occoquan Bay Refuge does not have any trails appropriate to accommodate this use.

This use is not allowed on any other Refuge Complex trails, nor is it allowed off-trail.

(c) When will the use be conducted?
This use is authorized according to the following:

Elizabeth Hartwell Mason Neck NWR: Year-round, during refuge hours of operation (typically April 1- September 30 from 7:00 AM to 7:00 PM and October 1 – March 31 from 7:00 AM to 5:00 PM). A temporary closure to these activities would be implemented during any scheduled Refuge hunt dates.

Featherstone NWR: Assuming trails have been developed and public access is available, year-round, during refuge hours of operation (typically April 1- September 30 from 7:00 AM to 7:00 PM and October 1 – March 31 from 7:00 AM to 5:00 PM). A temporary closure to these activities would be implemented during any scheduled Refuge hunt dates.

(d) How will the use be conducted?
Some refuge visitors will arrive to the refuge by vehicle and then engage in this use on the designated trails (e.g. transport bike by car and unload at trailhead), while others will arrive by non-motorized transportation (e.g. jog to Mason Neck Refuge from Mason Neck State Park).

This use is limited to designated trails with hardened surfaces that are wide enough to accommodate the safe passage of other trail users. Designated trails also have sufficient viewing distance for users engaged in this use to detect the approach of other users with enough space to maneuver to accommodate them. Similarly, pedestrian users on the trail can see the users from a reasonably safe distance.

This use occurs on both an individual and group basis. Generally, the groups are smaller than 10 people which, in our observations, do not detract from a positive wildlife-dependent recreational experience for other visitors in proximity. We have also received no complaints about any user conflicts.

Information kiosks identify the roads and trails open for travel and explain permitted public uses, including where this use is allowed. Refuge staff will continue to monitor for potential safety concerns and environmental impacts. Safety and information signs are in place and maintained as necessary. Designated trails will be maintained to minimize environmental effects such as erosion and sedimentation and to provide safe conditions for public access. The existing designated trail is on asphalt and there has been no evident of erosion from current use; however, Refuge staff will continue to monitor for any degradation of conditions.

Additional trails may also be considered in the future consistent with the final CCP or other appropriate regulatory process. Refuge staff will conduct regular monitoring of these non-motorized activities and would respond accordingly to minimize any safety or environmental impacts. Responses may include temporary closures, modifications to trail routes, or adding additional infrastructure to minimize short-term, localized, or predicted long-term impacts to soils and other resources, or to minimize safety concerns.

WHY IS THIS USE BEING PROPOSED?

These means of non-motorized access provide visitors with additional modes of transportation to access or travel through the refuges. The use also provides visitors with a way to view and enjoy the refuges' diverse natural and cultural resources. This exposure may lead to a better understanding of the importance and value of the Refuge System to the environment and the American people. This use has occurred with little to no impacts and some of these modes of access (e.g. bicycling) are extremely popular activities on the refuges.

AVAILABILITY OF RESOURCES:

The resources necessary to provide and administer this use is available within current and anticipated Refuge Complex budgets. Staff time associated with administration of this use is related to maintaining trails, insuring signs are posted, conducting outreach to visitors about refuge uses, and monitoring the effects of public uses on refuge resources and visitors. These staff activities will be conducted in conjunction with those outlined in the "Wildlife Observation, Photography, Environmental Education, and Interpretation" compatibility determination, and this use will not require any additional staffing or resources beyond what is necessary for those activities. Therefore, the costs listed below are identical to those listed in the compatibility determination for "Wildlife Observation, Photography, Environmental Education, and Interpretation."

Costs associated with administering this use include:

- Visitor Services Park Ranger GS-09 – 38 weeks/yr. = **$39,155**
- Deputy Refuge Manager (GS-11) – 3 weeks/yr. = **$3,740**
- Refuge Manager (GS-14) - 1 week/yr. = **$1,969**
- Law Enforcement Officer (GS-09) - 10 weeks/yr. = **$10,304**
- Maintenance Worker (WG-10) - 10 weeks/yr = **$11,416**
- Administrative Support Assistant (GS-7) – 1 week/yr. = **$980**
- *In addition volunteer hours ranging from 400 to 650 hours contributing approximately $10,400.00.*

Additional staff needs and costs are anticipated with the addition of trails and activities within the Complex. It will be necessary to hire a Visitor Services Manager (GS-11/12), Park Ranger (GS-5), Maintenance Worker (WG-9) and Maintenance Worker (WG-6) to compliment current staffing. The Visitor Services Manager will be available for public outreach and to facilitate the visitor services program on the complex. The Park Ranger will monitor visitor use and aide in facilitating visitor services opportunities. Maintenance staff will perform the regular maintenance duties and repairs that relate to visitor services.

Costs associated with administering additional uses include:

- Visitor Services Manager (GS-12) – 38 weeks/yr. = **$53,245**
- Maintenance Worker (WG-9) - 10 weeks/yr. = **$9,584**
- Maintenance Worker (WG-6) - 10 weeks/yr = **$7,796**
- Park Ranger (GS-5) – 38 weeks/yr. = **$24,229**

ANTICIPATED IMPACTS OF USE:

The use has the potential to affect a variety of migratory and resident wildlife and their habitats. Possible negative effects include disturbing wildlife, removing or trampling soils and vegetation, littering, vandalism, and entering closed areas. Refuge staff will conduct regular monitoring of the use and would respond accordingly to minimize any safety or environmental impacts.

Effects on Hydrology, Water Quality, and Soils: Designated routes will only occur on hardened surfaces designed to avoid impacts to streams, marshes or other wetlands, and minimize the introduction of soil sediment and alternation of hydrology in those areas. Rarely, if ever, trail maintenance may cause short term erosion and sedimentation in area waters. The locations of the trails and placement of culverts minimize changes to drainage patterns. The implications of poorly situated culverts is they could cause some drainages to receive less water and become drier, while forcing other drainages to carry more water resulting in accelerated erosion and increased water levels. However, these impacts have not been observed on the refuges.

If the use occurs off designated trails on native surfaces, it has the potential to effect soils and hydrology. Extensive tire or wheel ruts could cause soil compaction and create channeling or pooling of water during wet conditions. None of these conditions have been observed.

In addition, refuge staff will monitor designated trails for damage and remediate problem areas as needed. Outreach and law enforcement activities will continue to insure use off designated trails is kept to a rare occurrence.

Effects on Vegetation: Unauthorized use off of designated trails can also damage vegetation. Plants can physically be crushed by off-trail use. In addition, the use can cause compaction of soils, particularly when soils are wet, which can degrade plant communities associated with fragile organic soils. Soil compaction can also diminish the soil porosity, aeration, and nutrient availability, directly affecting plant growth and survival (Kuss 1986). Compaction can also limit re-vegetation of areas due to increased difficulty for root growth and penetration in the affected soils (Hammitt and Cole 1998). Kuss (1986) found plant species adapted to wet or moist habitats are the most sensitive, and increased moisture content reduces the ability of the soil to support recreational traffic.

Another potential affect on vegetation is the introduction of invasive plants. If native vegetation is impacted to the point that bare soil conditions are created, then invasive plants could invade. It is also possible that this use could transport and introduce invasive plant seeds from off-refuge (e.g. in bicycle tires), but there is no evidence that this is a major source of introduction. Refuge staff will continue to monitor for invasive species and control or eliminate them in conjunction with our existing annual invasive plant control program.

No impacts to vegetation have been observed, nor are they predicted, with these types of uses on the designated trails. In addition, as noted above, outreach and law enforcement activities will continue to insure unauthorized use is kept to a rare occurrence.

Effects on Wildlife: Disturbances to wildlife caused by human activities outdoors in natural settings, including the use described, vary with the wildlife species involved and the type, level, frequency, duration and the time of year that the human activities occur. The responses of wildlife to human activities include avoidance or departure from the site (Owen 1973, Burger 1981, Kaiser and Fritzell 1984, Korschen et al. 1985, Henson and Grant 1991, Kahl 1991, Klein 1993, Whittaker and Knight 1998), the use of sub-optimal habitat (Erwin 1980, Williams and Forbes 1980), altered behavior or habituation (Burger 1981, Korschen et al. 1985, Morton et al. 1989, Ward and Stehn 1989, Havera et al. 1992, Klein 1993, Whittaker and Knight 1998), attraction (Whittaker and Knight 1998), and an increase in energy expenditure (Morton et al. 1989, Belanger and Bedard 1990). Mammals may become habituated to humans making them easier targets for hunters. Disturbance can cause shifts in habitat use, abandonment of habitat and increased energy demands on affected wildlife (Knight and Cole 1991).

The effects of trails on wildlife are complex and not limited to the trail footprint. Trail use can disturb areas outside the immediate trail corridor (Trails and Wildlife Task Force 1998, Miller et al. 2001). Miller et al. (1998) describe a 75-meter zone of influence where bird abundance and nesting activities (including nest success) were found to increase as distance from a recreational trail increased in both grassland and forested habitats. Bird communities in this study were apparently affected by the presence of recreational roads and trails, where common species (e.g., American robins) were found near trails and rare species (e.g., grasshopper sparrows) were found farther from trails. Songbird nest failure was also greater near trails (Miller et al. 1998).

Several studies have examined the effects of recreationists on birds using shallow-water habitats adjacent to trails and roads through wildlife refuges and coastal habitats in the eastern United States (Burger 1981, Burger 1986, Klein 1993, Burger et al. 1995, Klein et al. 1995, Rodgers and Smith 1995, Rodgers and Smith 1997, Burger and Gochfeld 1998). Overall, the existing research demonstrates that disturbances from recreation activities have at least temporary effects on the behavior and movement of birds within a habitat or localized area (Burger 1981, Burger 1986, Klein 1993, Burger et al. 1995, Klein et al. 1995, Rodgers and Smith 1997, Burger and Gochfeld 1998). The findings that were reported in these studies are summarized as follows in terms of visitor activity and avian response to disturbance.

Presence: Birds avoided places where people were present and when visitor activity was high (Burger 1981, Klein et al. 1995, Burger and Gochfeld 1998). Batten (1977) and Burger (1981) found that wading birds were extremely sensitive to disturbance in the northeastern United States. However, the designated trails for this use is not located near any sensitive waterbird concentration areas. Klein (1993) found that, as the intensity of human disturbance increased, avoidance response by water birds increased. Conflicts arise when migratory birds and humans are present in the same areas (Boyle and Samson 1985). McNeil et al. (1992) found that many waterfowl species avoid disturbance by feeding at night instead of during the day. Studying the effects of human visitation on water birds at the J.N. "Ding" Darling National Wildlife Refuge, Klein (1989) found resident water birds to be less sensitive to disturbance than migrants were; the study also found that sensitivity varied according to species and individuals within species. In general, Klein found that herons and cranes were quite tolerant of people but were disturbed as they took terrestrial prey; great blue herons, tricolored herons, great egrets, and little blue herons were disturbed to the point of flight more than other birds. Kushlan (1978) found that the need of these birds to move frequently while feeding might disrupt inter-specific and intra-specific relationships. Gutzwiller et al. (1994) found that singing behavior of some songbird species was altered by low levels of human intrusion. Some bird species habituate to repeated intrusion; frequently disturbed individuals of some species have been found to vocalize more aggressively, have higher body masses, or tend to remain in place longer (Cairns and McLaren 1980).

Distance: Disturbance increased with decreased distance between visitors and birds (Burger 1986), though exact measurements were not reported and likely differ based on species and activity.

Reproduction and nesting success: Flight in response to disturbance can lower nesting productivity and cause disease and death (Knight and Cole 1991). Miller et al. (1998) found bird abundance and nesting activities (including nest success) increased as distance from a recreational trail increased in both grassland and forested habitats. Bird communities in this study were apparently affected by the presence of recreational trails, where

common species (i.e., American robins) were found near trails and more specialized species (i.e., grasshopper sparrows) were found farther from trails. Nest predation also was found to be greater near trails (Miller et al., 1998). Disturbance may affect the reproductive fitness of males by hampering territory defense, male attraction and other reproductive functions of song (Arrese 1987). Disturbance, which leads to reduced singing activity, makes males rely more heavily on physical deterrents in defending territories, which are time- and energy-consuming (Ewald and Carpenter 1978).

Noise: Noise caused by visitors resulted in increased levels of disturbance (Burger 1986, Klein 1993, Burger and Gochfeld 1998), though noise was not correlated with visitor group size (Burger and Gochfeld 1998).

Knight and Cole (1991) suggest recreational activities occurring simultaneously may have a combined negative impact on wildlife. Hammitt and Cole (1998) conclude that the frequent presence of humans in 'wildland' areas can dramatically change the normal behavior of wildlife mostly through 'unintentional harassment.'

Seasonal sensitivities can compound the effect of disturbance on wildlife. Examples include regularly flushing birds during nesting or causing mammals to flee during winter months, thereby consuming large amounts of stored fat reserves. Hammitt and Cole (1998) note that females with young (such as white-tailed deer) are more likely to flee from a disturbance than those without young. Some uses, such as bird observation, are directly focused on viewing certain wildlife species and can cause more significant impacts during breeding season.

Wildlife associated with aquatic habitats may also be affected by the use. Impacts that cause erosion and subsequent sedimentation of streams and vernal pools can reduce aquatic vegetation and dissolved oxygen concentrations (Sadoway 1986), and possibly kill aquatic invertebrates, fish, and affect the success of amphibian larvae and adults (Sadoway 1986). Because designated trails are on hardened surfaces and primarily in upland sites or located to minimize impacts to water and wetlands, the use as authorized on designated trails is not expected to increase erosion or sedimentation problems.

Anticipated impacts of the use on wildlife include temporary disturbances to species using habitats directly adjacent to the trails. This use generally occurs from spring through fall which may result in occasional direct impacts to wildlife. These direct impacts may include nest abandonment of bird species nesting adjacent to trails and mortality of amphibians, reptiles, and small mammals struck by a user while crossing the road or trails. Direct mortality is more likely to occur due to cars than the other modes of access included in this use, and there are no recorded incidents of wildlife deaths due to this use on the refuges. Long-term impacts may include certain wildlife species avoiding trail corridors as a result of this use over time. The designated trails are located primarily in continuous tracts of hardwood forest on the refuges where forest cover may help reduce disturbance.

Refuge staff will take appropriate measures to avoid or minimize negative effects to wildlife from this use. Trails will continue to be periodically assessed to prevent habitat degradation. If there is evidence of unacceptable adverse impacts on wildlife, we will re-route, curtail, or close trails to this use as deemed appropriate. We will post and enforce Refuge Complex regulations, and establish, post, and enforce closed areas as needed. Based on the information provided above, this use is not anticipated to significantly increase wildlife habitat fragmentation or cause significant impacts on wildlife through disturbance.

PUBLIC REVIEW AND COMMENT:

As part of the Elizabeth Hartwell Mason Neck/Featherstone NWRs CCP process, this compatibility determination will undergo extensive public review, including a comment period of 45 days following the release of the Draft CCP/EA.

DETERMINATION (CHECK ONE BELOW):

_____ Use is not compatible

__X__ Use is compatible with the following stipulations

STIPULATIONS NECESSARY TO ENSURE COMPATIBILITY:

The following actions will occur to ensure compatibility:

—Refuge regulations will be posted and enforced to help insure compliance and confine users to designated routes only. Closed areas will be established as needed, posted, and enforced. Signs necessary for visitor information, safety, and traffic control will be kept up to date.

—The use is restricted to Refuge Complex open hours (see details under "Description of Use", part (c) "When will the use be conducted?").

—Trails designated for the use is annually inspected for maintenance needs. Prompt action is taken to correct any conditions that risk public safety. Trails are maintained at a level that reasonably insures safe travel.

—The designated trails will continue to be monitored periodically to determine if they continue to meet the compatibility criteria established by the refuge. Should monitoring and evaluation of the use indicate that the compatibility criteria are or will be exceeded, appropriate action will be taken to ensure continued compatibility, including modifying or discontinuing the use.

—Routine law enforcement patrols will continue to be conducted throughout the year, and will continue to check for unauthorized uses. The patrols also serve as education and outreach to visitors to promote compliance with refuge regulations. They also will continue to monitor public use patterns and public safety, and document visitor interactions.

—Potential conflicts with other public uses, such as hunting, will be minimized by using trailhead signs and other media to inform the visitors about current public use activities as well as which activities are authorized in specific locations throughout the refuge.

JUSTIFICATION:

The modes of transport described above are extremely popular and established activities on the Refuge Complex and, based on staff observations, have occurred with little to no environmental impact. This use is only authorized on designated trails which are on well-maintained hardened surfaces, thereby limiting any increased physical impact from this activity to soils, hydrology, and vegetation. In addition, this use is not predicted to increase resource impacts over and above other, existing allowed public uses. In fact, these modes of access offer an alternative to cars, and thereby can reduce the amount of carbon emissions attributed to Refuge Complex visitors.

The two designated trails occur primarily in extensive closed canopy forest habitat. Disturbance that may occur along these routes potentially impacts only a fraction of the habitat available for wildlife in the Refuge Complex, and occurs within the most abundant habitat types on each refuge. By limiting use to designated trails on a small percentage of the refuges and within the most common habitat types on each refuge, disturbance will be limited and manageable.

For these reasons, disturbance effects will not prevent achieving refuge purposes or the mission of the Refuge System for conserving, restoring, and protecting wildlife resources.

We will post and enforce refuge regulations at information kiosks, and establish, post, and enforce closed areas as needed. We also evaluate the trails periodically to assess their condition to prevent degradation. If evidence of unacceptable adverse impacts appears, we will repair the trail through scheduled maintenance programs, or re-route, curtail, or close trails as deemed appropriate.

Conflicts between this use and other refuge uses are very rare. Most trails on the Refuge Complex are closed to this use to prevent user conflicts and to reduce the overall impact on priority public uses. Given the size of the refuges and limited amount of trail open to this use, conflicts are expected to continue to be very minor or non-existent.

Because of the criteria established for permitting this use, the modes of access discussed are considered to be acceptable and manageable methods for facilitating alternative transportation to the Refuge Complex. For the reasons discussed above, this access will not affect the ability to conserve wetlands or protect, manage, and restore the wildlife and plant resources, as mandated through the refuges' establishing purposes, or the mission of the Refuge System. We therefore conclude that non-motorized modes of access on designated trails will not materially interfere with or detract from the mission of the Refuge System or the purposes for which Elizabeth Hartwell Mason Neck, Occoquan Bay, or Featherstone NWRs were established.

SIGNATURE:

Refuge Manager _____ _____
(Signature) (Date)

CONCURRENCE:

Regional Chief _____ _____
(Signature) (Date)

MANDATORY 10 YEAR RE-EVALUATION DATE: _____

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COMPATIBILITY DETERMINATION

USE:

Wildlife Observation, Photography, Environmental Education, and Interpretation

REFUGE NAME:

Elizabeth Hartwell Mason Neck, Featherstone and Occoquan Bay National Wildlife Refuges (Potomac River National Wildlife Refuge Complex)

ESTABLISHING AND ACQUISITION AUTHORITY(IES):

The Potomac River National Wildlife Refuge Complex is composed of three nationally significant wildlife areas: Mason Neck, Featherstone, and Occoquan Bay National Wildlife Refuges.

Each National Wildlife Refuge (NWR) is established under specific legislation or administrative authority. Similarly, each refuge has one or more specific legal purposes for which it was established. The establishing legislation or authority and the purposes for each refuge in the Potomac River NWR Complex (Refuge Complex) are provided below:

Elizabeth Hartwell Mason Neck National Wildlife Refuge
Date Established: 1 February 1969

Establishing Authorities: Elizabeth Hartwell Mason Neck NWR (Mason Neck Refuge) was established under the Endangered Species Act (16 U.S.C. 1534), the Refuge Recreation Act (16 U.S.C. 460[k] – 460[k][4]), an Act Authorizing the Transfer of Certain Property for Wildlife , or other purposes (16 U.S.C. 667b), and the Migratory Bird Conservation Act (16 U.S.C. 715d).

Featherstone National Wildlife Refuge
Date Established: 23 February 1970

Establishing Authorities: Featherstone NWR (Featherstone Refuge) was established under Public Law 91-499 (1970).

Occoquan Bay National Wildlife Refuge
Date Established: 28 June 1998

Establishing Authorities: Occoquan Bay NWR (Occoquan Refuge) was established under the Act Authorizing the Transfer of Certain Property for Wildlife, or other purposes (16 U.S.C. 667b).

REFUGE PURPOSE(S):

Elizabeth Hartwell Mason Neck National Wildlife Refuge
Purpose(s) for which Refuge was established: Lands acquired under the Endangered Species Act are "… to conserve (A) fish or wildlife which are listed as endangered species or threatened species …. Or (B) plants …" (16 U.S.C. § 1534); lands acquired under the Refuge Recreation Act were found to be "… suitable for– (1) incidental fish and wildlife-oriented recreational development, (2) the protection of natural resources, (3) the conservation of endangered species or threatened species …" 16 U.S.C. § 460k-1 "… the Secretary … may accept and use … real … property. Such acceptance may be accomplished under the terms and conditions of restrictive covenants imposed by donors …" (16 U.S.C. 460[k] – 460[k][4]); lands acquired under the Act Authorizing the Transfer of Certain Property for Wildlife , or other purposes were established for their "… particular value in carrying out the national migratory bird management program." (16 U.S.C. § 667b); and lands acquired under the Migratory Bird Conservation Act were "… for use as an inviolate sanctuary, or for any other management purpose, for migratory birds." (16 U.S.C. § 715d).

Featherstone National Wildlife Refuge
Purpose(s) for which Refuge was established: Lands acquired under Public Law 91-499 (1970) were established to "... to protect the natural features of a contiguous wetland area." Public Law 91-499 (1970), dated Oct. 22, 1970.

Occoquan Bay National Wildlife Refuge
Purpose(s) for which Refuge was established: Lands acquired under the Act Authorizing the Transfer of Certain Property for Wildlife , or other purposes were established for their "… particular value in carrying out the national migratory bird management program." (16 U.S.C. § 667b)

NATIONAL WILDLIFE REFUGE SYSTEM MISSION:

"To administer a national network of land and waters for the conservation, management, and where appropriate, the restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans (National Wildlife Refuge System Improvement Act of 1997, Public Law 105-57)."

DESCRIPTION OF PROPOSED USE:

(a) What is this use? Is it a priority public use?
The uses are wildlife-oriented recreational activities including: wildlife observation, photography, environmental education and interpretation, including special self-led groups participating in these activities. These are priority public uses of the National Wildlife Refuge System under the National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd-668ee), as amended by the National Wildlife Refuge System Improvement Act of 1997 (Public Law 105-57).

(b) Where would the use be conducted?
Elizabeth Hartwell Mason Neck NWR
Priority public uses will normally occur along access roads and the Woodmarsh and Joseph V. Gartlan Jr. Great Marsh Trails. Parking areas are available at both trail heads. In addition, several parking locations are available throughout the Mason Neck Refuge for activities occurring under special conditions.

Wildlife observation and photography will occur generally on designated trails and access roads or at developments such as photography blinds and observation platforms. Currently several trails are available for wildlife observation and photography. Woodmarsh Trail, which is 2.5 miles long, is located off of High Point Road and features gravel and earthen paths, boardwalks, and an overlook onto the Great Marsh. The Joseph V. Gartlan Great Marsh Trail (Great Marsh Trail) is .75 miles one-way and is located off of Gunston Road. The Great Marsh Trail is accessible and features an observation platform.

Habitats along Woodmarsh and Great Marsh Trails include a mature deciduous forest and the Great Marsh, one of the largest marshes in Fairfax County. These habitats provide great opportunities to see wildlife such as bald eagles, many species of birds, animals that live in and frequent the water's edge, and several types of flora and fauna. Future plans include making improvements to existing trails and adding additional trails for added opportunities. Opportunities to improve existing trails will be accommodated to provide a safe trail system for wildlife and visitors when changes occur adjacent to or on the trail that require action. These changes may include but are not limited to changes in habitat due to downed trees or flooding, sensitive habitat occurrences due to nesting species, or recognition of a better or safer path to direct the trail.

One new trail project would connect the Woodmarsh Trail to the Great Marsh Trail. Another project would provide visitors additional opportunities along Sycamore Road from the Woodmarsh Trail kiosk adjacent to Sycamore Road through to the end of Sycamore Road at Sycamore Point during trail closures of sensitive habitat. Developing a trail out to Sycamore Point will provide opportunities for observation platforms along the Potomac River.

High Point Trail, a multi-purpose trail of which only ½ mile of the 3 mile trail traverses the Refuge, is located along High Point Rd. It features accessible paths and boardwalks and its function is to provide safe access for pedestrians to the Mason Neck State Park. This is the only trail that allows bicycling and other pedestrian

uses along with foot traffic on the Refuge. The trail was developed to provide a safe alternative to pedestrians that were using High Point Road to access the State Park. Future plans also include interpretive waysides and interpretive media to be provided adjacent to the trail.

On-refuge environmental education activities will occur year-round during refuge hours of operation; however most of the field programs will be associated with the fall and spring school year terms usually mid-morning through the afternoon. The environmental education activities will primarily include teacher-guided field trips exploring topics requested by teachers, teacher workshops, and more structured curriculum-based topics. Opportunities to partner with the adjacent Mason Neck State Park in some aspects of the environmental education activities will be sought. The environmental education site currently includes a pavilion, two portalets, and a ½ mile environmental education trail. The site will be improved to facilitate possible increased visitation. Repairs include, but are not limited to replacing the pavilion, installing improved restroom facilities, and rehabbing the environmental education trail.

On-refuge interpretation activities will occur generally on designated trails and access roads or at developments such as kiosks and observation platforms. Currently the interpretive sites located on Woodmarsh Trail are located at a kiosk at the parking lot, a wayside interpretive panel at the beginning of the trail and a kiosk at the back end of the trail adjacent to Sycamore Road. The interpretive sites located along the Joseph V. Gartlan Jr. Great Marsh Trail include a kiosk near the parking lot and a wayside interpretive panel at the end of the trail on the Great Marsh Overlook. Each kiosk at the head of both trails provides interpretive information, brochures, and bulletin boards highlighting information on refuge happenings. Future plans include updating and adding interpretive materials, waysides, kiosks, and/or other interpretive media formats where possible along these trails to facilitate the explanation of refuge resources, management, and to enhance self-guided opportunities. Woodmarsh Trail will also be renovated to feature a paved parking lot and improved kiosk facilities.

Off - and on-site opportunities to support multi-agency interpretive efforts will be supported by the refuge. Future plans include, but are not limited to an interpretive multi-agency kiosk that provides information about each agency located on the Mason Neck peninsula and a Traveler's Information System that would provide information about the refuge on an AM frequency.

Certain areas on the refuge may be closed to public access at the Refuge Manager's discretion to protect sensitive habitats or species of concern, minimize conflicts with other refuge activities, or due to human health and safety concerns.

Occoquan Bay National Wildlife Refuge:
Priority public uses will normally occur along access roads, the Wildlife Drive, and the observation platform on Marumsco Creek. Parking currently occurs in the center of the refuge in the designated public parking lot. In addition, several parking locations are available throughout the Occoquan Bay Refuge for activities occurring under special conditions. Electronic lures/calls for birds and wildlife are not allowed for use on the refuge unless under educational or research permit.

Wildlife observation and photography will occur generally on access roads that have been designated as trails, the Wildlife Drive, or at developments such as photography blinds and observation platforms. Currently several access roads/trails are available for wildlife observation and photography. The following access roads/trails are open to foot traffic only, unless special conditions apply: Lake Drive (.39 miles), Deephole Point Road (2.14 miles), Fox Road (.43 miles), Bayview Road (.31 miles), Easy Road (.61 miles), Delta Road (.17 miles), and portions of Charlie Road (.36 miles) and Taylor Point Road (.35 miles). Each road features gravel paths and offer slightly different habitat types and viewing opportunities, including but not limited to grasslands, wet meadows, shrubland, bottomland hardwoods, open water marsh, and the Belmont and Occoquan Bays. Lake Drive features the Painted Turtle Pond with a ramp and dock that can be used for observation. Deephole Point Road features a wildlife observation blind, a migratory bird banding station that operates in the spring, and a gazebo with a spotting scope that overlooks Occoquan Bay. The Wildlife Drive (1.69 miles) travels through several different habitats and allows the visitor an opportunity to see the refuge from personal vehicles or bicycles. Parking on the Wildlife Drive is not allowed. Bicycles are only allowed on the entry road, Wildlife Drive, and the proposed road to the Visitor Contact Station. Future plans include but are not limited to, adding additional trails for increased opportunities. A connector trail featuring a boardwalk and an observation platform along a marsh edge will be constructed between Easy Road and Deephole Point Road. A trail will also be constructed in an area along side the Wildlife Drive to divert pedestrian traffic off of the road. Depending on the location of the Visitor Contact Station, trails may be included adjacent or near the Station to provide opportunities for visitors interested in short walks through refuge habitat.

On-refuge environmental education activities will occur year-round during daylight hours when the refuge is open; however most of the field programs will be associated with the fall and spring school year terms. The environmental education activities will primarily include teacher-guided field trips exploring topics requested by teachers, teacher workshops, and more structured curriculum-based topics. Opportunities to partner with Prince William County Schools will be sought. The environmental education site currently includes a pavilion, one unisex portalet, a small marsh with boardwalk, and a pond with a dock and ramp. The site will be improved to facilitate possible increased visitation. Improvements include, but are not limited to increasing quality sampling sites for environmental education activities and stabilizing access routes to each educational site.

On-refuge interpretation activities will occur generally on designated trails and access roads or at developments such as kiosks and viewing platforms. Currently interpretive sites include a kiosk site outside the gate, the Main Parking Lot Pavilion featuring 6 interpretive panels, an interpretive trail featuring 10 small signs developed by the Friends of the Potomac River Refuges, and several locations scattered throughout the refuge discussing topics such as, but not limited to, butterflies, the marsh/beaver lodge, the Harry Diamond Lab, birds, bird banding, and habitat management. As additional trails are added, the interpretive value of the area will be determined and developed as such. Future plans include updating and adding interpretive materials, waysides, kiosks, and/or other interpretive media formats where possible along these trails to facilitate the explanation of refuge resources, management, and to enhance self-guided opportunities.

Off- and on-site opportunities to support multi-agency interpretive efforts will be supported by the refuge.

Certain areas on the refuge may be closed to public access at the Refuge Manager's discretion to protect sensitive habitats or species of concern, minimize conflicts with other refuge activities, or due to human health and safety concerns.

Featherstone NWR:
Currently the Featherstone Refuge is closed to the general public and does not have the facilities to support priority public uses.

Discussions to provide safe public access and parking to Featherstone Refuge are in progress. The construction of two new trails on the refuge is dependent on the success of securing public access to the refuge. The Riverside Station Residential Development has proposed building a trail through their property to provide public access to the Refuge's western boundary, and the Potomac Heritage National Scenic Trail (PHNST) is proposed as an access route for the east side of the Refuge. The PHNST is a partnership to develop a network of locally-managed trails in a 425-mile corridor between the Chesapeake Bay and the Allegheny Highlands. The route for the trail is proposed to travel along a portion of the old railroad path that traverses the entire refuge from north to south. Provided these trails are built as proposed through Featherstone Refuge, activities associated with wildlife observation, photography, environmental education and interpretation could be facilitated. Additional trails will be added to facilitate access to Farm Creek, Neabsco Creek, and /or Occoquan Bay.

Wildlife observation, interpretation, and photography will occur along designated trails. Electronic lures/calls for birds and wildlife are not allowed for use on the refuge unless under educational or research permit.

On-refuge environmental education activities will occur year-round during daylight hours when the refuge is open; however most of the field programs will be associated with the fall and spring school year terms. The environmental education activities will primarily include teacher-guided field trips exploring topics requested by teachers, teacher workshops, and more structured curriculum-based topics.

Off- and on-site opportunities to support multi-agency interpretive efforts will be supported by the refuge. Future plans include updating and adding interpretive materials, waysides, kiosks, and/or other interpretive media formats where possible along these trails to facilitate the explanation of refuge resources, management, and to enhance self-guided opportunities.

Certain areas on the refuge may be closed to public access at the Refuge Manager's discretion to protect sensitive habitats or species of concern, minimize conflicts with other refuge activities, or due to human health and safety concerns.

(c) When would the use be conducted?
Elizabeth Hartwell Mason Neck NWR: Year-round, during refuge hours of operation (typically April 1- September 30 from 7:00 AM to 7:00 PM and October 1 – March 31 from 7:00 AM to 5:00 PM). A temporary closure to these activities would be implemented during scheduled Refuge hunt dates.

Occoquan Bay NWR: Year-round, during refuge hours of operation (typically April 1- September 30 from 7:00 AM to 7:00 PM and October 1 – March 31 from 7:00 AM to 5:00 PM). A temporary closure to these activities would be implemented during any scheduled Refuge hunt dates.

Featherstone NWR: Assuming trails have been developed and public access is available, year-round, during refuge hours of operation (typically April 1- September 30 from 7:00 AM to 7:00 PM and October 1 – March 31 from 7:00 AM to 5:00 PM). A temporary closure to these activities would be implemented during scheduled Refuge hunt dates.

(d) How would the use be conducted?
These four priority uses will be conducted much as they are conducted presently. Such activities would be allowed on established roads, trails, and in buildings that have been designed to accommodate such uses, in areas that are the least sensitive to human intrusion. Self-guided groups of 10 or more will be required to have permission to visit the Refuge for these activities.

Self-guided groups are those who wish to host their own wildlife-dependant activities. As stated above, groups of 10 or more are required to have permission for these activities. Each request must be presented in writing with details of who, what, where, when, why, and how the activity will be conducted. Each request has different logistics, and therefore, would be evaluated for impacts on the Refuge mission. Using professional judgment, as long as there is no significant negative impact to natural resources or visitor services, or violation of Refuge regulations, a Special Use Permit(SUP) will be issued outlining the framework in which this use can be conducted. Refuge staff will ensure compliance with the SUP.

There will be a mix of personal and non-personal program delivery, including interpretive signing, audio-visual presentations, brochures, special events, guided walks and talks, exhibits, web site information, and informal visitor information contacts. Electronic lures/calls for birds and wildlife are not allowed for use on the refuge unless under educational or research permit.

Elizabeth Hartwell Mason Neck NWR: Only foot travel is allowed on refuge trails (i.e., Woodmarsh and Joseph V. Gartlan Jr. Great Marsh Trails, and the proposed Treestand Trail and Sycamore Trail). During snow events on the refuge, cross-country skiing and snow shoeing will be allowed on all refuge trails that allow foot travel. Bicycling and other non-motorized pedestrian use will be allowed on the High Point Trail only. Motorized use and horseback riding are prohibited on the refuge. These uses would be conducted by the general public, as well as by organized groups, including schools, birding groups, and scout groups.

Occoquan Bay NWR: An entrance fee will be charged to all with the exception of school groups, scouts on merit badge projects assignments, or children under 16 years of age at Occoquan Bay Refuge. Only foot travel is allowed on Lake Drive, Deephole Point Road, Fox Road, Easy Road, Bayview Road, Delta Road, and portions of Charlie and Taylor Point Road. During snow events on the refuge, cross-country skiing and snow shoeing will be allowed on all refuge trails that allow foot travel. Vehicles and bicycles can utilize the Wildlife Drive (Dawson Beach Road, Locust Road, a small portion of Charlie Road, Bravo Road, and the portion of Taylor Point Road that is outside the gate as visitors exit the refuge). Horseback riding is prohibited on all trails. These uses would be conducted by the general public, as well as by organized groups, including schools, birding groups, and scout groups.

Featherstone NWR: Bicycles and other pedestrians will be allowed on the Potomac Heritage National Scenic Trail (PHNST). Only foot travel will be allowed on trails that spur off of the PHNST for additional access to other parts of the Featherstone Refuge. During snow events on the refuge, cross-country skiing and snow shoeing will be allowed on all refuge trails that allow foot travel.

(e) Why is the use being proposed?
Wildlife observation and photography, and environmental education and interpretation are four of the six priority public uses of the National Wildlife Refuge System. If compatible, they are to receive enhanced consideration over other secondary public uses.

AVAILABILITY OF RESOURCES

The resources necessary to provide and administer these uses, at current use levels, are available within current and anticipated Refuge budgets. Staff time associated with administering these uses relate to assessing and conducting maintenance, including kiosks and other facilities, gates, trails, parking areas, and signs; monitoring potential impacts of the use on Refuge resources and visitors; and providing information and visitor service use opportunities to the public. Facilitating the special use permit process for wildlife dependent self-guided groups will be addressed within available resources. Staff costs are incurred in the review of each request, the coordination of groups or event coordinators, and the actual writing of the writing of the permit. Enforcement of compliance with rules and regulations and special use permit terms will incur costs.

Costs associated with administering this use include:

- Visitor Services Park Ranger GS-09 – 38 weeks/yr. = **$39,155**
- Deputy Refuge Manager (GS-11) – 3 weeks/yr. = **$3,740**
- Refuge Manager (GS-14) - 1 week/yr. = **$1,969**
- Law Enforcement Officer (GS-09) - 10 weeks/yr. = **$10,304**
- Maintenance Worker (WG-10) - 10 weeks/yr = **$11,416**
- Administrative Support Assistant (GS-7) – 1 week/yr. = **$980**
- *In addition volunteer hours ranging from 400 to 650 hours contributing approximately $10,400.00.*

Additional staff needs and costs are anticipated with the addition of trails and activities within the Complex. It will be necessary to hire a Visitor Services Manager (GS-11/12), Park Ranger (GS-5), Maintenance Worker (WG-9) and Maintenance Worker (WG-6) to compliment current staffing. The Visitor Services Manager will be available for public outreach and to facilitate the visitor services program on the complex. The Park Ranger will monitor visitor use and aide in facilitating visitor services opportunities. Maintenance staff will perform the regular maintenance duties and repairs that relate to visitor services.

Costs associated with administering additional uses include:

- Visitor Services Manager (GS-12) – 38 weeks/yr. = **$53,245**
- Maintenance Worker (WG-9) - 10 weeks/yr. = **$9,584**
- Maintenance Worker (WG-6) - 10 weeks/yr = **$7,796**
- Park Ranger (GS-5) – 38 weeks/yr. = **$24,229**

ANTICIPATED IMPACTS OF THE USE:

Wildlife observation, photography, environmental education, and interpretation can affect the wildlife resource positively or negatively. A positive effect of public involvement in these priority public uses will be a better appreciation and more complete understanding of Refuge wildlife and habitats. That can translate into more widespread, stronger support for the Refuge, the Refuge System, and the Service.

Wildlife observation and photography have the potential of impacting shorebird, waterfowl, marshbirds and other migratory bird populations feeding and resting near the trails during certain times of the year. Use of upland trails is more likely to impact songbirds than other migratory birds. Human disturbance to migratory birds has been documented in many studies in different locations.

Direct Impacts
Direct impacts have an immediate effect on wildlife. We expect those impacts to include the presence of humans disturbing wildlife, which typically results in a temporary displacement without long-term effects on

wildlife individuals or populations. Some species will avoid the areas people frequent, such as the developed trails and the buildings, while others seem unaffected by or even drawn to the presence of humans. Overall, those effects should not be significant, because most of the Refuge will experience minimal public use.

Conflicts arise when migratory birds and humans are present in the same areas (Boyle and Samson 1985). Response of wildlife to human activities includes: departure from site (Owen 1973, Burger 1981, Korschgen et al 1985, Henson and Grant 1991, Kahl 1991, Klein 1993), use of suboptimal habitat (Erwin 1980, Williams and Forbes 1980), altered behavior (Burger 1981, Korschen et al. 1985, Morton et al. 1989, Ward and Stehn 1989, Havera et al. 1992, Klein 1993), and increase in energy expenditure (Morton et al. 1989, Belanger and Bedard 1990). McNeil et al. (1992) found that many waterfowl species avoid disturbance by feeding at night instead of during the day. The location of recreational activities impacts species in different ways. Miller et al. (1998) found that nesting success was lower near recreational trails, where human activity was common, than at greater distances from the trails. A number of species have shown greater reactions when pedestrian use occurred off trail (Miller, 1998). In addition, Burger (1981) found that wading birds were extremely sensitive to disturbance in the northeastern U.S. In regard to waterfowl, Klein (1989) found migratory dabbling ducks to be the most sensitive to disturbance and migrant ducks to be more sensitive when they first arrived, in the late fall, than later in winter.

For songbirds, Gutzwiller et al. (1997) found that singing behavior of some species was altered by low levels of human intrusion. Pedestrian travel can impact normal behavioral activities, including feeding, reproductive, and social behavior. Studies have shown that ducks and shorebirds are sensitive to pedestrian activity (Burger 1981, 1986). Resident waterbirds tend to be less sensitive to human disturbance than migrants, and migrant ducks are particularly sensitive when they first arrive (Klein 1993). In areas where human activity is common, birds tolerated closer approaches than in areas receiving less activity.

Indirect Impacts
Laskowski et al. (1993), studied behavior of snowy egrets, female mallards, and greater yellowlegs. Behavior of snowy egrets was recorded during August and September 1992 to represent post-breeding marsh and wading birds. Mallards were monitored during migration (November 1992) and during the winter January (1993). Greater yellowlegs' behavior was observed during the northward shorebird migration (May 1993). Behavior was monitored during the typical public activities of walking, bicycling, and driving a vehicle past the sample sites.

The study found that snowy egret resting behavior decreased and alert behavior increased in the presence of humans. Preening decreased when humans were present, but this change was not significant. Feeding, walk/swim, and flight behaviors were not related to human presence. Female mallards in November increased feeding, preening and alert behaviors in the presence of humans. Resting, walk/swim, and flight behavior were not influenced by human presence. In January, female mallard resting and preening behavior were not influenced by the presence of humans. However, feeding, alert, walk/swim, and flight behaviors were related to human presence. Greater yellowlegs increased alert behavior in the presence of humans. No other behaviors were affected. Maintenance behavior (combined feeding, resting, and preening) decreased when humans were present for all study species. In addition, this decrease was accompanied by an increase in escape behavior by each species. Maintenance behavior of mallards in January decreased in the presence of vehicles and combined disturbance. Escape behavior increased when vehicles were present. Maintenance behavior of greater yellowlegs declined when bicycles and vehicles were present but was not influenced by pedestrian presence.

The presence of bicycles and vehicles increased escape behavior. Snowy egrets and female mallards increased movement between subplots and to areas within the study area but further from the disturbance.

During a five year study which involved nine different species of birds, researchers found only minimal evidence that intrusion affected bird distributions (Gutzwiller and Anderson 1999). This study also found that the species affected by intrusion were not consistent from year to year or within study areas and could be due to habituation of intrusion (Gutzwiller and Anderson 1999).

People can be vectors for invasive plants by moving seeds or other propagules from one area to another. Once established, invasive plants can out-compete native plants, thereby altering habitats and indirectly impacting wildlife. The threat of invasive plant establishment will always be an issue requiring annual monitoring and treatment when necessary. Our staff will work at eradicating invasive plants and educating the visiting public. Also, opening Refuge lands to public use can often result in littering, vandalism, or other illegal activities on the Refuge.

Cumulative Impacts
Impacts may be minor when we consider them alone, but may become important when we consider them collectively. Our principal concern is repeated disruptions of nesting, resting, or foraging birds. Our knowledge and observations of the affected areas show no evidence that these four, priority, wildlife-dependent uses cumulatively will adversely affect the wildlife resource. Although we do not expect substantial cumulative impact from these four priority uses in the near term, it will be important for Refuge staff to monitor those uses and, if necessary, respond to conserve high-quality wildlife resources.

Refuge staff, in collaboration with volunteers, will monitor and evaluate the effects of these priority public uses to discern and respond to any unacceptable impacts on wildlife or habitats. To mitigate those impacts, the Refuge will continue to close areas to the public to protect wildlife during critical life periods.

PUBLIC REVIEW AND COMMENT:

As part of the Elizabeth Hartwell Mason Neck/Featherstone CCP process, this compatibility determination will undergo extensive public review, including a comment period of 45 days following the release of the Draft CCP/EA.

DETERMINATION (CHECK ONE BELOW):

_____ Use is not compatible

__**X**__ Use is compatible with the following stipulations

STIPULATIONS NECESSARY TO ENSURE COMPATIBILITY:

No off-road or off-trail access will be permitted, except for emergency or administrative purposes, management actions, and for those who have obtained a Special Use Permit for a specific purpose that requires off-road/off-trail access.

Electronic lures/calls for birds and wildlife are not allowed for use on the refuge unless under educational or research permit.

For self-guided groups of 10 or more, each request must be presented in writing with details of who, what, where, when, why, and how the group activity will be conducted. Each request will then be evaluated for impacts to the Refuge. Using professional judgment, as long as there is no significant negative impact to natural resources or visitor services, or violation of Refuge regulations, a Special Use Permit will be issued outlining the framework in which this use can be conducted.

Elizabeth Harwell Mason Neck National Wildlife Refuge
Only foot travel is allowed on refuge trails (i.e., Woodmarsh and Joseph V. Gartlan Jr. Great Marsh Trails, and the proposed Treestand Trail and Sycamore Trail). During snow events on the refuge, cross-country skiing and snow shoeing will be allowed on all refuge trails that allow foot travel. Bicycling and other non-motorized pedestrian use will be allowed on the High Point Trail only.

Occoquan Bay National Wildlife Refuge
Only foot travel is allowed on Lake Drive, Deephole Point Road, Fox Road, Easy Road, Bayview Road, Delta Road, and portions of Charlie and Taylor Point Road. During snow events on the refuge, cross-country skiing and snow shoeing will be allowed on all refuge trails that allow foot travel. Vehicles and bicycles can utilize the Wildlife Drive (Dawson Beach Road, Locust Road, a small portion of Charlie Road, Bravo Road, and the portion of Taylor Point Road that is outside the gate as visitors exit the refuge).

Featherstone National Wildlife Refuge
Bicycles and other pedestrians will be allowed on the Potomac Heritage National Scenic Trail. Only foot travel will be allowed on trails that spur off of the PHNST for additional access to other parts of the Featherstone

Refuge. During snow events on the refuge, cross-country skiing and snow shoeing will be allowed on all refuge trails that allow foot travel.

JUSTIFICATION:

These four priority public uses will provide compatible educational and recreational opportunities for visitors to enjoy the Refuge Complex resources, and improve their understanding and appreciation of fish and wildlife, ecology, refuge management practices, and the relationship of plant and animal populations in the ecosystem. Visitors will better understand the Service role in conservation, and opportunities, issues, and concerns faced in management of our natural resources. Further, they will understand the impact that human presence, disturbance, and/or consumption can cause to these resources. Likewise, these four priority uses will provide opportunities for visitors to observe wildlife habitats firsthand, and learn about wildlife and wild lands at their own pace in an unstructured environment. Authorization of these uses will result in a wider constituency for achieving individual refuge goals, and, ultimately, the Service mission. These activities will not materially interfere with or detract from the mission of the NWRS or purposes for which Elizabeth Hartwell Mason Neck NWR, Occoquan Bay NWR, and Featherstone NWR were established.

SIGNATURE:

Refuge Manager _____ _____
(Signature) (Date)

CONCURRENCE:

Regional Chief _____ _____
(Signature) (Date)

MANDATORY 15 YEAR RE-EVALUATION DATE: _____

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COMPATIBILITY DETERMINATION

USE:

Hunting

REFUGE NAME:

Elizabeth Hartwell Mason Neck and Occoquan Bay National Wildlife Refuges (Potomac River National Wildlife Refuge Complex)

ESTABLISHING AND ACQUISITION AUTHORITY(IES):

The Potomac River National Wildlife Refuge Complex is composed of three nationally significant wildlife areas: Mason Neck, Featherstone, and Occoquan Bay National Wildlife Refuges.

Each National Wildlife Refuge (NWR) is established under specific legislation or administrative authority. Similarly, each refuge has one or more specific legal purposes for which it was established. The establishing legislation or authority and the purposes for each refuge in the Potomac River NWR Complex (Refuge Complex) are provided below:

Elizabeth Hartwell Mason Neck National Wildlife Refuge
Date Established: 1 February 1969

Establishing Authorities: Elizabeth Hartwell Mason Neck NWR (Mason Neck Refuge) was established under the Endangered Species Act (16 U.S.C. 1534), the Refuge Recreation Act (16 U.S.C. 460[k] – 460[k][4]), an Act Authorizing the Transfer of Certain Property for Wildlife , or other purposes (16 U.S.C. 667b), and the Migratory Bird Conservation Act (16 U.S.C. 715d).

Occoquan Bay National Wildlife Refuge
Date Established: 28 June 1998

Establishing Authorities: Occoquan Bay NWR (Occoquan Refuge) was established under the Act Authorizing the Transfer of Certain Property for Wildlife, or other purposes (16 U.S.C. 667b).

REFUGE PURPOSE(S):

Elizabeth Hartwell Mason Neck National Wildlife Refuge
Purpose(s) for which Refuge was established: Lands acquired under the Endangered Species Act are "… to conserve (A) fish or wildlife which are listed as endangered species or threatened species …. Or (B) plants …" (16 U.S.C. § 1534); lands acquired under the Refuge Recreation Act were found to be "… suitable for– (1) incidental fish and wildlife-oriented recreational development, (2) the protection of natural resources, (3) the conservation of endangered species or threatened species …" 16 U.S.C. § 460k-1 "… the Secretary … may accept and use … real … property. Such acceptance may be accomplished under the terms and conditions of restrictive covenants imposed by donors …" (16 U.S.C. 460[k] – 460[k][4]); lands acquired under the Act Authorizing the Transfer of Certain Property for Wildlife , or other purposes were established for their "… particular value in carrying out the national migratory bird management program." (16 U.S.C. § 667b); and

lands acquired under the Migratory Bird Conservation Act were "… for use as an inviolate sanctuary, or for any other management purpose, for migratory birds." (16 U.S.C. § 715d).

Occoquan Bay National Wildlife Refuge
Purpose(s) for which Refuge was established: Lands acquired under the Act Authorizing the Transfer of Certain Property for Wildlife , or other purposes were established for their "… particular value in carrying out the national migratory bird management program." (16 U.S.C. § 667b)

NATIONAL WILDLIFE REFUGE SYSTEM MISSION:

"To administer a national network of land and waters for the conservation, management, and where appropriate, the restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans (National Wildlife Refuge System Improvement Act of 1997, Public Law 105-57)."

DESCRIPTION OF USE:

(a) What is the use? Is the use a priority public use?
The use is the hunting of white-tail deer and turkey on the Potomac River NWR Complex. The National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd-668ee), as amended by the National Wildlife Refuge System Improvement Act of 1997 (Public Law 105-57), identifies hunting as one of the six priority wildlife-dependent recreational uses to be facilitated within the National Wildlife Refuge System. The Act encourages the Service to provide opportunities for these uses when compatible with the purposes for which the refuge was established.

(b) Where would the use be conducted?
Elizabeth Hartwell Mason Neck NWR
The Mason Neck Refuge will be open for public hunting.

Deer hunting will take place within the refuge boundary. Buffer zones are included for all roads and refuge facilities. The refuge will be closed to all other public uses during scheduled deer (archery and shotgun) hunt days.

In the Draft Comprehensive Conservation Plan, we propose to expand hunting opportunities to include a youth turkey hunt. Turkey hunting will take place within the refuge boundary to the west of Sycamore Road. No public use trails will be closed during the turkey hunt. All hunting activities will take place on remote portions of the refuge with ample buffers to ensure the safety of the general public and the avoidance of encounters with individuals carrying firearms or carrying killed game.

Occoquan Bay NWR
The Occoquan Refuge will be open for public hunting.

Deer hunting will take place within the refuge boundary only from stationary hunt stands. The number of hunters permitted to occupy stands and the specific stand locations will be assessed after each hunting season and adjusted as necessary to meet deer management objectives.

(c) When would the use be conducted?
Dates would fall with Virginia's regulated seasons for the species mentioned. Specific dates in a given year would be coordinated with VDGIF.

Elizabeth Hartwell Mason Neck NWR
The deer hunt (shotgun) is currently conducted over the course of two consecutive days in late November and a third day in early December. Hunting days will only occur during Virginia's regulated seasons and hunt dates may vary annually based on management needs.

In our Draft CCP/EA, we propose to establish an archery deer hunt, which would be conducted during Virginia's regulated archery hunting season.

In our Draft CCP/EA, we propose to establish a youth turkey hunt, which would be done in partnership with VDGIF and the National Wild Turkey Federation and occur on 3 days during the spring and/or fall, in accordance with Virginia's regulated season dates.

Occoquan Bay NWR
The deer hunt is currently conducted for 3 days in December and 1 day in January; VDGIF conducts a deer hunt for youth on a Saturday in December. Refuge deer management hunts take place over the course of two additional days in December and a third optional day in January. Hunting days will always occurring during the VDGIF state-regulated seasons and hunt dates may vary annually based on management needs.

(d) How would the use be conducted?
Elizabeth Hartwell Mason Neck NWR White-tailed Deer Hunt (shotgun)
The Refuge permits hunting within state guidelines in compliance with a hunt program that is adjusted each year to ensure safety and sound wildlife management. The Mason Neck Refuge has held an annual deer hunt since 1989. The shotgun deer management program is a cooperative effort with the VDGIF and the State Department of Conservation and Recreation, Mason Neck State Park (MNSP).

The management hunt has an application process, an orientation and firearm certification requirement, and provides for a scouting day prior to selected hunt days. Applications will usually be available during the first week of July and due the first week of October. Once applications have been received and input into a lottery database, selections are made by computer and selection notices are sent out to all hunters. All hunters must certify firearms expected to be used during the hunt prior to attending the orientation session (online or in-person). Once the firearm certification is verified and the prospective orientation session has been attended, hunters will then be allowed to purchase a hunt permit. Scouting usually occurs the first Sunday in November. Hunters selected for the shotgun management hunt have the opportunity to visit their assigned parking lot and scout areas in the hunting area.

On each hunt day, a maximum of 57 hunters are allowed to park within ten available parking lots, the designated tree stand parking lot, and the mobility impaired hunting lots (1,730 acres). If a slot in a designated parking lot is not filled, a stand-by hunter (hunters that did not get selected for the current hunt day but have permits for other days of hunting) will be directed to those vacant parking slots on a first-come, first-serve basis.

This existing hunt is highly managed by Refuge and MNSP staff, and volunteers. On each day of the hunt, after identification and certification cards have been checked and hunters have been checked-in, the hunters drive to designated parking lots. If deer have been harvested, hunters drive to the deer check station for data collection on harvested game. At that time, the hunter, depending on the harvested game have an option to return to hunting or leave for the day. Throughout the day, until 3:00 PM, standby hunters have an option to fill vacant parking slots once a hunter has checked out.

Elizabeth Hartwell Mason Neck White-tailed Deer (archery)
The Refuge permits hunting within state guidelines in compliance with a hunt program that we will adjust each year to ensure safety and sound wildlife management. The Mason Neck Refuge has held an annual deer hunt since 1989. As in the past, future plans include an archery component. The deer management archery program will be a cooperative effort with VDGIF and other possible interested parties (e.g., Mason Neck State Park, Bureau of Land Management – Meadowwood Recreation Area).

The management hunt has an application process, an orientation and archery certification course requirement, and provides for a scouting day prior to selected hunt days. Applications will usually be available during the first week of July and due as early as August. Once applications have been received and input into a lottery database, selections are made by computer and selection notices are sent out to all hunters. All hunters must attend an archery certification course prior to attending the orientation session (online or in-person). Once the archery certification is verified and the prospective orientation session has been attended, hunters will then be allowed to purchase a hunt permit. Scouting will be allowed before the first day of hunting. Hunters selected

for the archery management hunt have the opportunity to visit their assigned parking lot and scout areas in the hunting area.

On each hunt day, a maximum of 30 hunters are allowed to park within the ten available parking lots, the designated tree stand parking lot, and the mobility impaired hunting lots (1,730 acres).

Elizabeth Hartwell Mason Neck NWR Wild Turkey Hunt
In our Draft CCP/EA, we propose to expand hunting opportunities to include a youth turkey hunt. This youth hunt will occur for 3 days in conjunction with the state hunting seasons in the spring and/or fall. Partnerships with VDGIF and the National Wild Turkey Federation will facilitate the program. This opportunity coincides with VDGIF's goal of introducing youth to hunting and the FWS's objectives of connecting children with nature. Expectations are that youth hunters and accompanying mentors will be selected for each hunt day. We will allow up to 10 hunters in total, with an expected maximum harvest of 8-10 turkeys annually. Efforts will be made to minimize conflicts between hunting, habitat management, migratory bird nesting, and other wildlife-dependent recreation by restricting the hunt area to portions of the refuge west of Sycamore Road thereby avoiding trails open to the public. State regulations related to turkey hunting and bag limits will be strictly enforced.

Occoquan Bay NWR White-tailed Deer Hunt
The Refuge permits hunting within state guidelines in compliance with a hunt program that is adjusted each year to ensure safety and sound wildlife management. The Occoquan Bay Refuge has held an annual deer hunt since 2001. The deer management program is a cooperative effort with VDGIF.

The VDGIF Generations Deer Hunting Workshop is coordinated and facilitated by VDGIF staff. The hunt has an application process which includes a written essay and a firearm certification requirement. Applications are due to VDGIF in October. Once applications have been received, selections are made based on submitted material. Emphasis is placed on encouraging youth with little to no hunting experience to participate. The hunt day involves a morning lecture on deer health and behavior and hunting safety; a mid-day break for lunch; and an afternoon of chaperoned hunting from deer stands.

The FWS management hunt has an application process, an orientation and firearm certification requirement prior to selected hunt days. Applications will usually be available during the first week of July and due the first week of October. Once applications have been received and input into a lottery database, selections are made by computer and selection notices are sent out to all hunters. All hunters must certify firearms expected to be used during the hunt prior to attending the orientation session (online or in-person). Once the firearm certification is verified and the prospective orientation session has been attended, hunters will then be allowed to purchase a hunt permit.

On each hunt day, the number of hunters allowed on the refuge will be determined by the number of active stands deemed necessary to control the deer herd on 640 acres of the refuge. If hunt stands are not filled, the stand-by hunter (hunters that did not get selected for the current hunt day but have permits for other days of hunting) will be directed to vacant hunt stands on a first-come, first-serve basis.

This existing hunt is highly managed by Refuge and VDGIF staff, and volunteers. On each day of the hunt, after identification and certification cards have been checked and hunters have been checked-in, the hunters are dropped off at designated hunt stands. If deer have been harvested, hunters are picked up and brought back to the deer check station for data collection on harvested game. At that time, the hunter, depending on the harvested game have an option to return to hunting or leave for the day.

All Hunting Opportunities
All hunt zones and hunt boundaries will be posted with permanent and/or temporary markings including but not limited to orange carsonite posts, A-series refuge management personnel, and seasonally visible vinyl boundary flagging. Refuge and MNSP law enforcement personnel, along with VDGIF Game officials will monitor the hunts for compliance with State Game laws and hunt specific regulations. Organized drives by hunters to move deer into specific directions is deemed to be outside the spirit of the hunt. Hunts facilitated at the Occoquan Bay Refuge will be conducted using refuge stationary hunt stands. The use of hunt stands

during the Mason Neck hunt is optional. The use of dogs is not permitted during any of the managed deer hunts. In addition, the use of rifles or crossbows will not be allowed.

(e) Why is the use being proposed?
White-tailed deer have a high reproductive potential. This potential, coupled with the declining acreage of quality habitat for them on Mason Neck Peninsula, necessitates the use of hunting to control or reduce the population. Biological sampling conducted during these hunts has indicated that the population levels have been stabilized by the hunting and that the overall health of the deer has improved. Though formal vegetation studies have not been conducted to determine changes in habitat, visually, it is evident that the impacts attributed to the browsing of forest understory habitat by deer have decreased. The recovery of the understory has afforded certain wildlife with food and cover.

The shotgun deer hunts are conducted in the Fall and Winter when the neotropical migratory birds are absent and the northern migratory songbirds are not nesting. Any disturbances to these birds, waterfowl and other wildlife are outweighed by the overall improvements to habitat from reducing the deer herd.

Wild turkey hunting is a traditional outdoor pastime. When managed responsibly, it can instill a unique appreciation of wildlife, their behavior, and their habitat needs.

Providing hunting will support one of the "Big 6" activities of the Improvement Act (Public Law 105-57) and, if compatible, is to receive enhanced consideration in refuge planning.

AVAILABILITY OF RESOURCES:

The Potomac River NWR Complex incurs the bulk of the cost for implementing the hunt program in staff time to administer the hunt each day and to coordinate with our partners. To expand hunting opportunities proposed in the CCP, there will be increased costs to post hunt boundary and staff additional days; however, this cost (included below) is within the existing budget and staff resources of the Refuge.

Costs associated with administering this use include:

- Senior Refuge Biologist (GS-12) and/or GS-09 Refuge Biologist - 4 weeks/yr. = **$6,954**
- Visitor Services Manager (GS-12) and/or GS-09 Refuge Operations Specialist – 2 weeks/yr. = **$3,476**
- Deputy Refuge Manager (GS-11) – 8 weeks/yr. = **$11,603**
- Refuge Manager (GS-14) - 2 weeks/yr. = **$4,884**
- Law Enforcement Officer (GS-09) - 2 weeks/yr. = **$2,398**
- Maintenance Worker (WG-10) - 4 weeks for new hunt opportunities = **$4,408**; 2 week/yr. thereafter = **$2,204**
- Administrative Support Assistant (GS-7) – 1 week/yr. = **$980**
- *In addition volunteer hours ranging from 200 to 250 hours contributing approximately $4,000.00.*

ANTICIPATED IMPACTS OF THE USE:

The management goals and objectives of Potomac River NWR Complex which include Elizabeth Hartwell Mason Neck NWR, Occoquan Bay NWR, and Featherstone NWR pertain to the preservation and enhancement of habitats for endangered species; management and protection of waterfowl and other migratory bird habitats, maintenance of a diversity of habitats for indigenous species; and to provide areas for environmental education, research and public use. Impacts from deer and turkey hunting and scouting

opportunities may include the temporary displacement of non-target wildlife and minor impacts to vegetation from foot traffic.

Based on a nationwide survey of all states (Krausman 1992), deer were effectively controlled with hunting and habitat manipulation in many areas where they were overpopulated. The remaining overpopulated herds were either not hunted, had an inadequate doe harvest, or an inadequate general harvest. Because the population of deer in the Refuge boundary area is open, with numerous tracts and corridors for movement and contact with other herds, it is unlikely that hunting will reduce the population to such low levels as to place it at risk of becoming genetically bottlenecked. Also, no prevention or control of epizootic hemorrhagic disease exists to date except by keeping populations below the carrying capacity of their habitats. In a 10-year study in northwestern Pennsylvania examining the impacts of varying densities of deer on deer health and habitat, starvation mortality resulted when densities reached higher than 25 deer per square kilometer (247 acres).

Species richness and abundance of shrubs and herbaceous vegetation was also shown to decline when deer densities reach between 4-8 deer/km^2 (deCalesta and Stout 1997). Habitats subject to deer damage include forest understory and shrub habitat that migratory songbirds depend on for food resources. Heavily-browsed vegetation leaves less food and cover habitat for neotropical migratory birds, a trust resource which the Refuge is charged with protecting. Controlled hunting keeps the deer population within the carrying capacity of the habitat. Modifying the hunt program to further reduce the deer population would then reduce the browse effects on vegetation. This would enable the forest understory to grow and produce more food and cover for neotropical migrants. It would also provide additional food and cover for species such as small mammals, reptiles and invertebrates.

The impacts of dense deer populations on forest regeneration and the composition and diversity of the herbaceous understory have been well documented (Tierson, et al., 1966; Behrend, et al., 1970; Tilghman, 1989).

At high densities, deer may act as a host reservoir for Lyme-disease bearing ticks (Jones et al. 1998). Reducing the deer population will reduce the potential for Lyme disease transmission. Based on these considerations, it is anticipated that hunting would have a positive impact on deer health and quality and habitat condition. Reducing the deer population will also benefit the surrounding human community by reducing damage on crops and residential landscape vegetation. No adverse impacts to vegetation from trampling from hunters are likely, as most species will have already undergone biological aging or become dormant. Soil and water quality are not expected to experience any negative effects under this alternative.

During the shotgun deer hunt timeframe, populations of most migratory birds are low. Some disturbance occurs to waterfowl, but it is offset by the benefits of a healthy deer herd that is smaller and is not consuming large quantities of waterfowl food plants. Disturbance to endangered species has not been noted in 18 years of hunting. A Section 7 consultation was prepared and approved on the hunt program in 1989. The deer hunt would occur outside of the breeding period of most species, thereby avoiding any potential disturbance. No adverse effects on migratory birds or inter-jurisdictional fishes are anticipated as a result of establishing a hunt program. Wintering or resident birds, small mammals, and reptiles may experience some flushing, but there is ample cover in the form of marsh, hedgerows, shrubland, and tall grasses for flushed wildlife to repair to, therefore it is expected that this disturbance will be temporary and normal use will resume shortly after the hunt closes each day.

Each refuge is completely closed to the public during the managed deer hunts. Though this is an inconvenience for the general refuge visitor, hundreds of individuals who do not visit the refuge on a regular basis are afforded an opportunity to participate in a wildlife dependent activity and expand their knowledge and skills in wildlife observation and biology.

No public use trails will be closed during the turkey hunt. All hunting activities will take place on remote portions of the refuge with ample buffers to ensure the safety of the general public and the avoidance of encounters with individuals carrying firearms or carrying killed game.

Hunters benefit from the harvesting of game for personal consumption. Hunters who come from outside the local area also contribute to the local economy by staying at local hotels and eating in local restaurants.

We do not expect a substantial increase in the cumulative effects of visitor use over the 15 year timeframe of this plan. Staff, in collaboration with volunteers, will monitor and evaluate the effects of these priority public uses to discern and respond to any unacceptable impacts on wildlife or habitats. To mitigate those impacts, the Refuge Complex will continue to close areas to the public to protect wildlife during critical life periods.

PUBLIC REVIEW AND COMMENT:

As part of the Elizabeth Hartwell Mason Neck/Featherstone CCP process, this compatibility determination will undergo extensive public review, including a comment period of 45 days following the release of the Draft CCP/EA.

DETERMINATION (CHECK ONE BELOW):

_____ Use is not compatible

__X__ Use is compatible with the following stipulations

STIPULATIONS NECESSARY TO ENSURE COMPATIBILITY:

The hunt program would be managed in accordance with Federal and State regulations. The deer hunt would be reviewed annually to ensure deer management goals are achieved. Both the deer and turkey hunts would be reviewed annually to ensure the program is providing a safe, high quality hunting experience for participants. The Annual Hunt Plan must be approved by Regional Office supervisors. Hunt season dates, limits and/or number of hunters per day would be adjusted as needed to achieve balanced wildlife population levels within carrying capacities.

Each refuge will be closed to all other public uses during the scheduled deer (shotgun and archery) hunt days. To mitigate user conflicts that arise when we close the Refuge to other public use, we would issue news releases and post information at the visitor center and informational kiosks to notify visitors of closings. We maintain safe deer and turkey hunts by limiting the number of hunters per day and by establishing a buffer zone around refuge residence buildings.

All hunters must follow the following stipulations for deer hunting:

1. You must possess and carry a refuge permit.

2. We select hunters by lottery using the Quota Deer Hunt Application Form. Contact the refuge office for information on application dates.

3. We send applicants an information packet detailing specific dates, details, and requirements for the hunt, including, but not limited to: hunt dates, hunt areas, bag restrictions, firearm certification requirements and locations, orientation dates/times, scouting date(s), check station location, and maps.

4. Hunters must certify/qualify weapons and ammunition and attend an orientation session or take the orientation session online prior to issuance of a permit. Please contact the Refuge for the online orientation web address.

5. Hunters must wear a minimum of 400 square inches of visible solid hunter-orange clothing and a hunter-orange hat.

6. We may close areas of the refuge to hunting. We will identify these areas on the maps in the information packet and review them during orientation.

JUSTIFICATION:

Hunting is a wildlife-dependent priority public use with minimal impact on Refuge resources. Hunting is consistent with current Service policy on hunting, the National Wildlife Refuge System Improvement Act of 1997, and the broad management objectives of the National Wildlife Refuge System. Hunting will not materially interfere with or detract from the purposes of the refuge or the mission of the National Wildlife Refuge System. The Refuge currently is meeting deer management and visitor services objectives.

CONCURRENCE:

Refuge Manager _____ _____
(Signature) (Date)

CONCURRENCE:

Regional Chief _____ _____
(Signature) (Date)

MANDATORY 15 YEAR RE-EVALUATION DATE: _____

LITERATURE CITED:

Behrend, D. F., G. F. Mattfield, W. C. Tierson and J. E. Wiley. 1970. Deer density control for comprehensive forest management. J. Forestry. 68:695-700.

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Jones, C.G., Ostfeld, R.S. Richard, M.P., Schauber, E.M. and Wolf, J.O. 1998. Chain reactions linking acorns to gypsy moth outbreaks and Lyme disease risk. *Science* 279 (5353); 1023-1026.

Krausman, P.R., Sowls, L.K., Leopold, B.D. 1992. Revisiting overpopulated deer ranges in the United States. *California Fish and Game* 78(1); 1-10.

Tierson, W. C., E. F. Patric and D. F. Behrend. 1966. Influence of white-tailed deer on the logged northern hardwood forest. J. Forestry. 64:804-805.

Tilghman, N. G. 1989. Impacts of white-tailed deer on forest regeneration in northwestern Pennsylvania. J. Wildl. Manage. 53:524-532

COMPATIBILITY DETERMINATION

USE:

Fishing

REFUGE NAME:

Featherstone and Occoquan Bay National Wildlife Refuges (Potomac River National Wildlife Refuge Complex)[1]

ESTABLISHING AND ACQUISITION AUTHORITY(IES):

The Potomac River National Wildlife Refuge Complex is composed of three nationally significant wildlife areas: Mason Neck, Featherstone, and Occoquan Bay National Wildlife Refuges. This compatibility determination covers both Featherstone and Occoquan Bay National Wildlife Refuges.

Each National Wildlife Refuge (NWR) is established under specific legislation or administrative authority. Similarly, each refuge has one or more specific legal purposes for which it was established. The establishing legislation or authority and the purposes for each refuge in the Potomac River NWR Complex (Refuge Complex) are provided below:

Featherstone National Wildlife Refuge
Date Established: 23 February 1970

Establishing Authorities: Featherstone NWR (Featherstone Refuge) was established under Public Law 91-499 (1970).

Occoquan Bay National Wildlife Refuge
Date Established: 28 June 1998

Establishing Authorities: Occoquan Bay NWR (Occoquan Refuge) was established under the Act Authorizing the Transfer of Certain Property for Wildlife, or other purposes (16 U.S.C. 667b).

REFUGE PURPOSE(S):

Featherstone National Wildlife Refuge
Purpose(s) for which Refuge was established: Lands acquired under Public Law 91-499 (1970) were established to "... to protect the natural features of a contiguous wetland area." Public Law 91-499 (1970), dated Oct. 22, 1970.

Occoquan Bay National Wildlife Refuge
Purpose(s) for which Refuge was established: Lands acquired under the Act Authorizing the Transfer of Certain Property for Wildlife , or other purposes were established for their "… particular value in carrying out the national migratory bird management program." (16 U.S.C. § 667b)

NATIONAL WILDLIFE REFUGE SYSTEM MISSION:

"To administer a national network of land and waters for the conservation, management, and where appropriate, the restoration of the fish, wildlife, and plant resources and their habitats within the United States

[1] No fishing is allowed on Mason Neck refuge as per refuge regulations

for the benefit of present and future generations of Americans (National Wildlife Refuge System Improvement Act of 1997, Public Law 105-57)."

DESCRIPTION OF USE:

(a) What is this use? Is it a priority public use?
The use is freshwater fishing, which is a priority public use of the National Wildlife Refuge System under the National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd-668ee), as amended by the National Wildlife Refuge System Improvement Act of 1997 (Public Law 105-57).

(b) Where would the use be conducted?
Featherstone NWR
Fishing is proposed as a use for the Refuge at designated fishing platforms along the shoreline on Farm Creek, Neabsco Creek and/or Occoquan Bay. It is proposed that up to 4 fishing platforms would be constructed in designated locations on the refuge. The platforms will be 16' x 20' and will be able to accommodate no more than 10 people per platform. Fishing is prohibited in the Refuge at any other area.

Occoquan Bay NWR
Fishing is proposed as a use for the Refuge at the Painted Turtle Pond location along the shoreline of the pond and the dock adjacent to the pond. The Painted Turtle Pond will serve environmental education, special event, and fishing uses. Environmental education and special events will have priority over fishing uses. In the event that an environmental education visit or special event is planned, the pond would be closed to fishing for its duration.

(c) When would the use be conducted?
Featherstone NWR
The Refuge is proposed to be open to public fishing during refuge hours of operation (typically April 1-September 30 from 7:00 AM to 7:00 PM and October 1 – March 31 from 7:00 AM to 5:00 PM). The process of opening each location will be phased-in as official fishing locations are designated, the appropriate signage is installed, and gates or other measures to control access and ensure safety, quality, and compatibility are implemented. If law enforcement problems arise or if litter and equipment debris issues become too great, we may limit hours or otherwise restrict access to specific fishing locations. A temporary closure to these activities would be implemented during any scheduled Refuge hunt dates.

Occoquan Bay NWR
The Refuge is proposed to be open to public fishing during refuge hours of operation (typically April 1-September 30 from 7:00 AM to 7:00 PM and October 1 – March 31 from 7:00 AM to 5:00 PM). The process of opening the pond as an official fishing location will be implemented. The pond will be available for use once the opening package has been completed. Other measures will be implemented to ensure safety, quality, and compatibility – signage installation and access control. If law enforcement problems arise or if litter and equipment debris issues become too great, we may limit hours or otherwise restrict access to the pond. A temporary closure to these activities would be implemented during any scheduled Refuge hunt dates

(d) How would the use be conducted?
Featherstone NWR
Visitors are free to fish from designated platforms as this activity is deemed wildlife oriented and is promoted within the US Fish and Wildlife Service, nationwide. Visitors are required by Virginia regulations to maintain a current fishing license (unless exempt), except for the "Virginia Free Fishing Weekend," and follow all Virginia fishing regulations. The Refuge will impose stricter regulations as deemed necessary to protect fish and wildlife populations on Refuge lands. Visitors may utilize a rod and reel or hook and line only when fishing. No lead sinkers will be permitted.

While the Refuge allows fish to be removed from these areas, catch and release will be promoted to the fisherman using these areas. Visitors will supply their own fishing gear, bait, and access to the open areas.

Occoquan Bay NWR
Visitors are free to fish the pond as this activity is deemed wildlife oriented and is promoted within the US Fish and Wildlife Service, nationwide. Visitors are required by Virginia regulations to maintain a current

fishing license (unless exempt), except for the "Virginia Free Fishing Weekend," and follow all Virginia fishing regulations. The Refuge will impose stricter regulations as deemed necessary to protect fish and wildlife populations on Refuge lands. Visitors may utilize a rod and reel or hook and line only when fishing. No lead sinkers will be permitted. Live minnows or other small live fish will not be allowed as bait.

While the Refuge may allow some fish to be removed from the pond, largemouth bass will be catch and release only to maintain the existing health and productivity of the fisheries. Visitors will supply their own fishing gear and bait.

(e) Why is this use being proposed?
This use is being proposed by the refuge to accommodate one of the priority public uses of the Refuge System. There is a scarcity of public fishing opportunities in Northern Virginia and this coupled with an increasing demand for access to recreational waters are the reasons we are pursuing this opportunity at the refuge. The 2007 Virginia Outdoors Plan states that over 50 percent of Virginians felt the most needed outdoor recreation opportunities include public access to waters for fishing. It further states that fishing was ranked as the seventh most popular outdoor recreational activity in Virginia and expressed a need to increase access to fishing locales to address increases in demands.

Featherstone NWR
Fishing is currently taking place on the Refuge in an illegal manner. The use has been deemed appropriate on the Featherstone Refuge. The use will not be able to occur unless access issues can be worked out. The use is being proposed to address the needs of our constituency and enhance visitor experience. Refuge expenses would include infrastructure development, already existing standard law enforcement patrols to verify regulations are being followed, and additional signage for information purposes. This use supports wildlife dependent recreation as outlined in the Refuge System Improvement Act of 1997.

Occoquan Bay NWR
The use is being proposed to address the needs of our constituency and enhance visitor experience. Refuge expenses would include already existing standard law enforcement patrols to verify regulations are being followed and additional signage/brochures for information purposes. This use supports wildlife dependent recreation as outlined in the Refuge System Improvement Act of 1997.

AVAILABILITY OF RESOURCES:

Permitting the general fishing use is not within the resources available to administer our Visitor Services Program. The funding received by the Refuge is not adequate to administer this program and to ensure that the use remains compatible with the Refuge purposes. The use of the area specified for fishing is a small area, where cost effective administration of the program can occur after the infrastructure has been developed and constructed. Compliance with fishing regulations is handled within the regular duties of the Station Law Enforcement Officer.

The Visitor Services Manager is available for public outreach. A Park Ranger will monitor visitor use and user interactions. Maintenance staff performs the regular maintenance and repairs. Permitting the general fishing use is not within the resources available to administer our Visitor Services Program. The funding received by the Refuge is not adequate to administer this program and to ensure that the use remains compatible with the Refuge purposes. The use of the area specified for fishing is a small area, where cost effective administration of the program can occur after the infrastructure has been developed and constructed. Compliance with fishing regulations is handled within the regular duties of the Law Enforcement Officer.

Costs associated with administering this use include:

- Law Enforcement Officer (GS-09) - 2 weeks/yr. = **$2,398**
- Trail and Platform development and construction = **$200K** *est.*

Additional staff needs and costs are anticipated with the addition of trails and activities within the Complex. It will be necessary to hire a Visitor Services Manager (GS-11/12), Park Ranger (GS-5), Maintenance Worker (WG-9) and Maintenance Worker (WG-6) to compliment current staffing. The Visitor Services Manager will be available for public outreach and to facilitate the development of the fishing program on the refuges. The Park

Ranger will monitor visitor use and aide in facilitating the fishing program. Maintenance staff will perform the regular maintenance duties and repairs that relate to the fishing program.

Costs associated with administering additional uses include:

- Visitor Services Manager (GS-12) – 6 weeks/yr. = $8,407.2
- Maintenance Worker (WG-9) - 4 weeks/yr. = $5,750
- Maintenance Worker (WG-6) - 4 weeks/yr = $4,677
- Park Ranger (GS-5) – 6 weeks/yr. = $4,264

ANTICIPATED IMPACTS OF THE USE:

While the day-to-day activity of fishing does cause the death of fish if removed from the Refuge, there are still little significant impacts from the use. While some fish are lost to the system forever, they are renewable resources that reproduce on their own. There is also little significant impact on migratory birds due to the small number of fish that are removed from the Refuge through the public fishing program and while fishing may cause other wildlife disturbances; these impacts are minimal due to the stationary nature of anglers.

Foot travel to fishing areas will occur on established trails. Trail use can disturb wildlife outside the immediate trail corridor (Trails and Wildlife Task Force 1998, Miller et al. 2001). Miller et al. (1998) found bird abundance and nesting activities (including nest success) increased as distance from a recreational trail increased in both grassland and forested habitats. Bird communities in this study were apparently affected by the presence of recreational trails, where common species (i.e., American robins) were found near trails and rare species (i.e., grasshopper sparrows) were found farther from trails. Songbird nest failure was also greater near trails (Miller et al. 1998).

Humans walking off trail have been shown to cause greater disturbance (greater area of influence, flush distance and distance moved) to wildlife than walking within trail corridors (Miller et al. 2001). Predictability of disturbance (on trail vs. off trail) has been cited as a major factor in impacts to wildlife. Walking off trail is considered less predictable to wildlife and typically more disruptive (Knight and Cole 1991, Trails and Wildlife Task Force 1998, Miller et al. 2001). Requiring anglers to use designated public use trails to access fishing areas will help limit this type of disturbance.

Potential impacts to birds: An indirect benefit to upland habitats and associated species would derive from careful, strategic management of this fishing program. Public awareness and appreciation of the refuge, its habitats, and resources would inspire some to volunteer or in other ways support the refuge needs and conservation of resources on the landscape in general. Increases in annual visitor numbers during the daytime (public use sites would be open during refuge-specific operation hours) will surely result from constructing fishing piers, installing informational kiosks at Featherstone; opening Painted Turtle Pond at Occoquan Bay, and other planned activities described herein, although it is difficult to predict a frequency or rate. Visitors at these sites may flush rafting waterfowl or eagles hunting the marshes within view of a trail, launch or pier, although we anticipate that in the winter public use at these locations would be minimal, at least in the early years after opening.

Higher rates of public use would occur during the warmer months, when most waterfowl are on northern breeding grounds. Wetland species likely to be disturbed and flushed during the warmer months include bald eagle (fewer than in winter), belted kingfisher, mallard, great blue heron, and basking turtles. The sites are not particularly sensitive, rare, or in close proximity to nest areas, and there are protected and secluded areas nearby where disturbed wildlife can retreat to. Disturbance is therefore anticipated to be minor, temporary, and infrequent. Paths from parking areas to fishing access have the potential to disturb forest interior dwelling bird species at Featherstone.

Direct impacts on wildlife in the form of disturbance can be expected wherever humans have access to an area, and the degree may vary depending on the habitat type. In general, human presence disturbs most wildlife, which typically results in a temporary displacement without long-term effects on individuals or populations.

Some species, such as wood thrush, will avoid areas frequented by people, such as developed trails and structures, while other species, particularly highly social species such as eastern tufted titmouse, Carolina chickadee, or Carolina wren, seem unaffected or even drawn to a human presence. When visitors approach too closely to nests, they may cause the adult bird to flush exposing the eggs to weather events or predators. Provided that visitor use is confined to designated areas, disturbance during the breeding season will be limited to those areas.

Overall, direct impacts from access to fishing areas would be greatly reduced if facilities avoid area- sensitive habitats (interiors of grasslands and forests). A potential direct negative impact exists for wetland and open waterbird species (such as osprey, herons, and waterfowl) from lost fishing gear; specifically, hooks, lures, and litter, or becoming entangled in fishing line or hooks. Ingestion of lead sinkers is another source of concern throughout the region, but use of lead sinkers is not permitted at the refuge. The extent to which these bird species are impacted by fishing tackle currently is unknown. We will continue to work with our fisheries assistance office and the State in implementing a public education and outreach program on these issues. Increased law enforcement is also planned.

Potential impacts to threatened and endangered species: Despite their removal in 2006 from the Federal List of Endangered and Threatened Species, we included bald eagles in this section due to the fact they are a focal species within the region and because of the extra protection they are afforded under the Bald and Golden Eagle Protection and Migratory Bird Acts. Permitting public access to any waterfront or marsh managed by the refuge holds the possibility of impacting bald eagles. Impacts may either be displacement or temporary disturbance depending extent of use of a given site by visitors and eagles. As trees mature and forest riparian buffers are improved, sites with low concentrations will likely increase in importance to bald eagles. We will avoid potential adverse impacts to bald eagles by strictly following the management guidelines developed by Federal and State agencies. These include sight and distance setbacks from nests and concentration areas, and time-of-year restrictions.

Potential impacts to wetlands: Potential adverse impacts to wetlands could arise if facilities were improperly placed in wetland habitats, if public use were allowed to occur directly in wetlands, or if erosion of sediments into wetlands was allowed to occur during facility construction. The only facilities proposed for construction in wetlands are the fishing docks at Featherstone. Construction of these facilities will cause temporary and minimal (less than 0.01 acre) impacts to wetlands. We will employ silt fencing and other best management practices during construction of any facilities in proximity of wetlands to avoid runoff of sediments. Many of our interpretive messages included on kiosk panels remind visitors of the importance!of wetlands and the many beneficial functions they provide to society, including wildlife habitat, flood protection, groundwater recharge and nutrient uptake.

Potential impacts to other fish and wildlife: Direct impacts on wildlife in the form of disturbance can be expected wherever humans have access to an area, and the degree may vary depending on the habitat type. In general, human presence disturbs most wildlife, which typically results in a temporary displacement without long-term effects on individuals or populations. Major concerns of any refuge fishing program are accidental or deliberate introductions of non- native fish (used for bait), accidental introduction of invasive plants, pathogens, or exotic invertebrates attached to fishing boats, and over-harvesting. The refuge does not permit use of live minnows in order to prevent the likelihood of introductions of non-native fish. Another common concern is the reduction or alteration of prey base important to fish-eating wildlife. Refuge-specific regulations address this concern by limiting bass fishing to catch and release only at Painted Turtle Pond on Occoquan Bay. The current fishing program of the refuge follows the Virginia state regulations and would adopt any State harvest limits that should become applicable to the fish species in this pond. These limits are set to ensure that harvest levels do not cumulatively impact native fish resources to the point they are no longer self-sustainable. We also follow recommendations of Service fisheries biologists who conduct periodic sampling of this refuge pond. We plan to continue to work with State conservation officers in implementing a public education and outreach program, and increased law enforcement is also planned to address the above concerns.

Mammals in Virginia occupy a diverse array of habitat types, including wetlands on Featherstone and Occoquan Bay refuges where fishing may occur. As a taxonomic group, mammals will also benefit from the refuge land protection and management actions relative to riparian habitats, forests, grasslands, shrub, and wetlands proposed for listed species, waterfowl, and migratory birds. Likewise, the refuge will benefit from careful attention to the impacts to mammals resulting from any of its activities. We evaluated the management actions proposed for this use for their potential to benefit or adversely affect large and small, aerial, terrestrial, and wetland mammals and believe that they should have no long-term impact on mammal use of the refuge.

Protection and good stewardship of the area's native mammals and herpetofauna is another priority of the refuge, and supports our goals and objectives for wetlands, uplands, and riparian habitats. We evaluated fishing for its potential to benefit or adversely affect mammals, amphibians, and reptiles or their habitats used for mating, reproduction, over-wintering, and foraging. Most of the mammal, amphibian, and reptile species that occur on the refuge are very common and widespread. However, one species of particular concern to us is the eastern box turtle. In addition, amphibians everywhere are considered to be experiencing a general decline. Our fishing programs would only occur in designated areas closely monitored to ensure no habitat degradation occurs. These designated areas would not be placed in or near any sensitive habitat areas, such as vernal pools, to reduce impacts to mammals, amphibians, reptiles and other native wildlife.

Sometimes maintenance actions for public use may involve preparations or outcomes that have direct negative impacts to native wildlife, including mammals, amphibians and reptiles. Mowing of grassy access roads and public use trails that lead to these proposed fishing areas occasionally destroys small mammals, turtles, snakes or frogs if conducted during times of movement (warm months). The best way to minimize this direct type of negative impact is to keep public use and access roads mowed short so that they do not become attractive habitat. However, in many cases it will be impossible to find a perfect time to carry out maintenance actions that will completely avoid conflict for wildlife. Construction of gravel parking areas and trails leading to the fishing areas pose the potential threat of blocking access between different habitat types, depending on the placement, length, width, and substrate material of the lot and trails leading to the fishing sites. Some salamander species will not cross openings that are too wide or dry, bare ground (Vinson 1998), thus earthen trails, if exposed to sunlight could become dry enough to form a barrier.

Gravel roads or trails, even though permeable, may also act as a barrier to salamander movement (Marsh et al. 2005). The planned graveled trails are for access and will therefore be located on level terrain, avoiding ravines which are home to amphibians and reptiles. At most these trails will be no more than 2 miles at length at Occoquan Bay and 4 miles at length at Featherstone, and their widths no more than six feet. Disturbance to basking or nesting turtles may occur where public use is concentrated at points where land and water interface. Other walking trails will be simple cleared paths and perhaps mulched in some locations, but these too will avoid moist ravines close to amphibian habitat.

Disturbance to basking or nesting turtles may occur where public use is concentrated at points where land and water interface. Fishing at Featherstone NWR will occur in areas such as these. Basking turtles can usually find alternate resting surfaces. Nesting turtles, once engaged in the act of digging usually will not allow their attention to be drawn to anything else, and at such time are vulnerable to predators. A turtle wishing to make landfall to attempt egg-laying however may be dissuaded by the presence of humans at the site. Because there will be ample wetland-forest-grassland interface elsewhere, we expect that the cumulative impact of parking lots, roads, and trails to amphibians and reptiles at the landscape scale will be insignificant.

We do not expect a substantial increase in the cumulative effects of visitor use over the 15 year timeframe of this plan. Staff, in collaboration with volunteers, will monitor and evaluate the effects of these priority public uses to discern and respond to any unacceptable impacts on wildlife or habitats. To mitigate those impacts, the Complex will continue to close areas to the public to protect wildlife during critical life periods.

PUBLIC REVIEW AND COMMENT:

As part of the Elizabeth Hartwell Mason Neck/Featherstone CCP process, this compatibility determination will undergo extensive public review, including a comment period of 45 days following the release of the Draft CCP/EA.

DETERMINATION (CHECK ONE BELOW):

_____ Use is not compatible

__X__ Use is compatible, with the following stipulations

STIPULATIONS NECESSARY TO ENSURE COMPATIBILITY:

- State and Refuge specific fishing regulations will apply.
- Cooperate with VDGIF to implement angling regulations and management actions.
- Maintain closed areas which allow for migratory birds to still feed.
- No motorized access for fishing will be allowed.

JUSTIFICATION:

Fishing is an appropriate wildlife-dependant use of Refuge resources. It has been a long standing tradition in the Region and while the Refuge is proposing to maintain areas open to public fishing, it still maintains certain areas will remain closed. These closed areas assist in providing the quality food source for migratory water birds that depend on fish for survival.

The U.S. Fish and Wildlife Service and Featherstone National Wildlife Refuge promote fishing as a viable wildlife oriented recreational activity. These propose areas will provide an opportunity to educate children on how to fish, provide for an opportunity to learn about nature, the Refuge system, and enhance ethical fish behavior at a young age. This activity can also build or strengthen a bond between friends and family and enhance both individual's knowledge about the natural ecosystem provided and why it is important to protect them.

SIGNATURE:

Refuge Manager _____ _____
(Signature) (Date)

CONCURRENCE:

Regional Chief _____ _____
(Signature) (Date)

MANDATORY 15 YEAR RE-EVALUATION DATE: _____

(Date)

LITERATURE CITED:

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